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ABSTRACT

This report describes the development of the Georgia Interactive Network for Medical Information (GaIN), a project initially funded by a three-year (1983-1986) National Library of Medicine resource project grant. Designed to serve as a model network to transmit information via computer directly to health professionals, GaIN now operates through a multi-level system that connects hospitals, practice sites, and the GaIN center at the Mercer University School of Medicine (MUSM) Library. A discussion of project aims covers the establishment of a network and the introduction of services into the network, and an evaluation of the project using the Context, Input, Process, and Product (CIPP) model concludes that the project has been successful both as a prototype medical information network and as a support network for the Georgia health care system. In addition, plans for the continuation of the project are described, and the value of the project to others is considered. Also included are a 54-item project bibliography of publications, presentations, poster sessions, and announcements and short articles, as well as a GaIN calendar including monthly listings of milestones, meetings, exhibits, demonstrations, and training sessions for September 1983-August 1986. The text is supplemented with 12 statistical illustrations, and promotional materials and evaluation forms are appended. (KM)

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Final Grant Report

National Library of Medicine

Resource Project Grant G08 LM 04109

Georgia Interactive Network--GaIN--for Medical Information

September 1, 1983 - August 31, 1986

Principal Investigator

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TABLE OF CONTENTS

	Page
I. DESCRIPTION OF THE PROJECT	1
II. ACCOMPLISHMENT OF AIMS	2
A. The Network	2
1. Primary Nodes (Individual Members)	2
2. GaIN Secondary Nodes (Hospital Members)	3
3. Network Management	4
B. GaIN Services	5
1. Network Online Services	5
2. Network Educational Activities	7
3. User Training	8
4. GaIN Promotion	9
III. EVALUATION	9
A. Context Evaluation	9
1. Advisory Board	9
2. Physician Pre-Questionnaire	10
B. Input Evaluation	10
C. Process Evaluation	11
1. Usage Statistics	11
2. GaIN Services	12
3. GaIN Training and Educational Programs	12
4. Troubleshooting and Staff Input	13
D. Product Evaluation	13
1. GaIN Membership Profile	13
2. Medical Student Data	13
3. GaIN Physicians' Evaluation of the GaIN Project	14
4. GaIN Librarians' Evaluation of the GaIN Project	15
5. Cost Effectiveness	15
E. Evaluation Summary	16
IV. PROJECT CONTINUATION	17
V. VALUE OF PROJECT TO OTHERS	18
VI. PROJECT BIBLIOGRAPHY	19
A. Publications	19
B. Presentations	19
C. Poster Sessions	20
D. Announcements and Short Articles	21
VII. GaIN CALENDAR	23

APPENDICES

A. Promotional Materials
B. Evaluation Forms

ILLUSTRATIONS

Illus. 1. GaIN Network Map
Illus. 2. GaIN Online Catalog
Illus. 3. GaIN Cataloging
Illus. 4. Primary Nodes - GaIN System Use
Illus. 5. Secondary Nodes - GaIN System Use
Illus. 6. Primary Nodes - Connect Time Analysis
Illus. 7. Secondary Nodes - Connect Time Analysis
Illus. 8. Units of Service to Network
Illus. 9. Library Searches Provided for GaIN Members
Illus. 10. GaIN Connect Time Analysis
Illus. 11. Value of GaIN Functions as Perceived by Users
Illus. 12. GaIN Cost-Effectiveness Analysis

I. DESCRIPTION OF THE PROJECT

The Georgia Interactive Network for Medical Information (GaIN) was developed under a three-year resource project grant (1983-1986) from the National Library of Medicine. The purpose of the project was to establish a coordinated information and educational support system for rural Georgia, a model network to transmit information via computer directly to the health professional who needs the information.

The project has been a success. In place at the end of the grant project in August, 1986, is a viable network whose continuation and on-going growth now seem assured. The network operates through a multi-level system that connects hospitals, practice sites, and the GaIN center at the Mercer University School of Medicine (MUSM) Library in Macon, Georgia, Bibb County (Illus. 1). The programs provided by GaIN to the network are online services, network educational activities, and user training. GaIN has also been very effective in raising awareness of computers among physicians in the State of Georgia.

The goals of the GaIN project were:
(1) to demonstrate an information system for a rural area;
(2) to develop a model educational support network for physicians;
(3) to instill effective information skills in Mercer medical students;
(4) to develop, implement, and evaluate a technologically-based rural clinical medical library system.

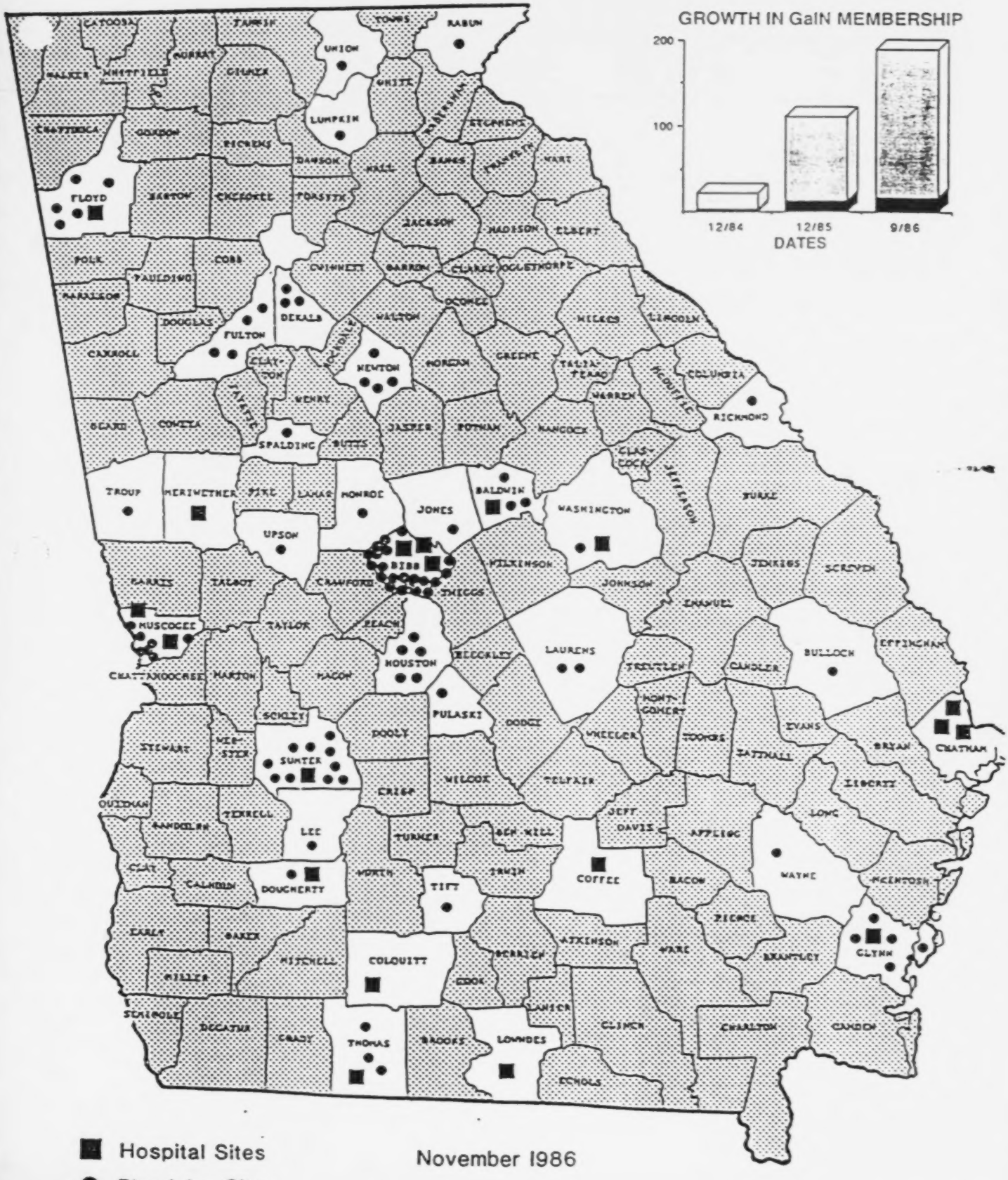
The GaIN project came about in response to three issues of particular concern at MUSM. The first is conveying information services to rural Georgia. The mission of MUSM is to train physicians through a problem-based, student-centered, tutorial curriculum to practice primary care medicine in rural and medically underserved areas of Georgia. Much of the curriculum occurs in locations remote from the campus in Macon. To provide information services to this group of remote users was one of the challenges in library planning.

A second issue behind the design of the GaIN project is the need to incorporate new technology into the process of medical education and medical practice. Although Mercer University dates from early 1800's, the School of Medicine is the newest fully accredited U.S. medical school. MUSM is innovative in its approach to medical education. GaIN was perceived as the opportunity to introduce computers and networking to medical students.

Third, GaIN is a response by MUSM to the challenge of the Matheson-Cooper Report, Academic Information in the Academic Health Sciences Center, published in 1983 by the Association of American Medical Colleges. Specifically, the project has established an automated medical library with an information data base to serve as its center; the project provides a bridge to external data bases; and the project has implemented important linkages with patient care settings in both hospitals and at practice sites.

The network design incorporates four key principles:
(1) Gateway: The network accomodates different levels of access to systems. GaIN members use the GaIN computer gateway to connect to outside information sources--such as the National Library of Medicine or BRS--or they may also link to these and other sources directly.
(2) Distributed processing: All functions on the network occur at the most logical and cost effective level. Thus, functions occuring at MUSM are those that do not reasonably occur at other levels in the network. The objectives are to minimize telecommunication costs and to distribute the workload of support services.
(3) Service to rural Georgia: Rural Georgia has provided political and financial support for MUSM since its inception. A prime objective of the GaIN project is to provide information services to rural Georgia, to those health professionals who do not have as ready access to information resources as do those residing in

GaIN NETWORK



■ Hospital Sites

● Physician Sites

November 1986

metropolitan areas.

(4) Biomedical Communications Network: The traditional structure of the BCN, with consortia of hospitals linking basic units at the grassroots level, has enabled the formation of GaIN. The GaIN model reinforces the role of hospital library in the BCN by providing member libraries with a central role in the delivery of information through GaIN. GaIN in fact has encouraged the development of new hospital libraries. However, GaIN is also responding to changing patterns of accessing information by providing an information product for the end-user.

(5) Shared costs: From the pre-grant planning stages to the present there has been a serious local commitment made for this project. The percentage of costs carried by local participants increased annually during the project. The project is now fully supported by local funding, both from MUSM and from network member fees.

II. ACCOMPLISHMENT OF AIMS

The GaIN project was implemented through a dual-track effort: (1) the establishment of a network, and (2) the introduction of services into this network.

A. The Network

AIM: The GaIN program will establish a hierarchical network that builds on the existing consortium of Health Science Libraries of Central Georgia... that links with practice sites either directly or through hospitals.

1. Primary Nodes (Individual Members)

Through institutional and individual memberships, approximately 13,500 Georgia health professionals have access to GaIN services. Institutional memberships bring on large groups of users. In the School of Medicine, terminals are hard-wired to GaIN and provide access to the system. Terminals in the GaIN hospital libraries give all members of the staff of these hospitals the opportunity to access the system.

Primary nodes or individual members represent a small but important subset of GaIN users. Primary nodes are individual users of GaIN at clinical and educational sites who dial into the system through telephone connections. The physician practice sites nominated by GaIN hospital members form the nucleus of primary nodes in the GaIN network. In addition, there are the following groups: MUSM faculty, including geographically remote preceptors, MUSM students, and others.

Primary Nodes	
Sponsored Practice Sites	19
MUSM Faculty Using Remote Access	28
MUSM Students Using Remote Access	45
Other Physicians & Health Professionals	80
TOTAL:	172

The grant proposal planned for a total of 15 primary nodes to be connected into the network by the completion of the three-year project. GaIN membership enrollment has far surpassed the scope of the GaIN model as originally conceived (Illus. 1). Individual members provide their own equipment and communications software to access GaIN. This equipment and software vary from site to site. The network offers a toll-free telephone number to members residing beyond the local calling area.

The role of the primary node in the network is chiefly that of recipient of information services. Many primary node physicians have also performed important services for the network: participation in the GaIN Advisory Board; provision of informal feedback and suggestions; use of their clinical sites for GaIN

demonstrations; provision of technical and/or specialized equipment expertise; promotion of GaIN among their colleagues and membership referrals; incorporation of GaIN in professional education events and programs; liaison with the Medical Association of Georgia; participation in evaluation studies and discussion groups. Involvement by physicians in GaIN has been educational for both the GaIN staff who have learned the wants and needs of physicians and for physicians who have learned about realistic applications for computers in their practice.

Initially for the primary nodes but also in response to a general physician need for unbiased information about computers, GaIN has assumed a leadership role in assisting physicians in the selection of equipment and software. GaIN staff serve as technical advisors both in MUSM and for the network. Educational activities are also provided by GaIN which contribute to a greater understanding by health professionals of computer theory and applications in health care.

2. GaIN Secondary Nodes (Hospital Members)

The initial grant proposal projected an end-of-project hospital membership of seven institutions. Interest in GaIN exceeded expectations and, because microcomputer and associated software costs have dropped significantly since the beginning of the project, GaIN was able to request and receive approval to purchase equipment for 14 institutions over the three-year project. This equipment remains in the GaIN hospitals after the expiration of the grant under a lease agreement. Three additional hospitals joined GaIN as part of an existing shared services agreement with Colquitt Regional Medical Center, wherein they share a circuit librarian and a GaIN portable microcomputer. The Macon-Bibb County Public Health Department provides its own equipment to connect with GaIN.

As of August 31, 1986, there are 18 GaIN institutions. Profiles of these institutions are included in the grant proposal or in the Year 01 and Year 02 progress reports.

GaIN Institutional Members and Date of Installation

+ Candler General Hospital, Savannah, GA [10-1-85]
+ Central State Hospital, Milledgeville, GA [3-29-84]
+ Coffee Regional Hospital, Douglas, GA [3-18-86]
+ Colquitt Regional Medical Center, Moultrie, GA [9-27-85]
+ Floyd Medical Center, Rome, GA [3-28-85]
+ Glynn-Brunswick Memorial Hospital, Brunswick, GA [3-21-85]
John D. Archbold Memorial Hospital, Thomasville, GA [9-27-85]
Macon-Bibb County Public Health Department, Macon, GA [2-3-85]
+*Medical Center, Columbus, GA [3-29-84]
+*Medical Center of Central Georgia, Macon, GA [3-29-84]
+*Memorial Hospital of Washington County, Sandersville, GA [4-3-86]
+ Memorial Medical Center, Savannah, GA [12-6-85]
Phoebe Putney Memorial Hospital, Albany, GA [11-5-85]
+*Roosevelt-Warm Springs Institute for Rehabilitation, Warm Springs, GA [1-28-85]
+ St. Joseph's Hospital, Savannah, GA [3-25-86]
South Georgia Medical Center, Valdosta, GA [9-27-85]
+ Sumter Regional Hospital, Americus, GA [1-22-85]
+*West Central Georgia Regional Hospital, Columbus, GA [10-28-85]

+ Received GaIN equipment
* HSLCG consortium members

The consortium of Health Science Libraries of Central Georgia (HSLCG) has been a key force in the formative and implementation stages of the GaIN network. The project aim that GaIN nodes be installed in all HSLCG hospital libraries that

can demonstrate stable and adequate library staffing has been accomplished.

Three HSLCG libraries were the first GaIN hospital members. It was in great part the history of inter-institutional cooperation through HSLCG that enabled these libraries to obtain initial administrative support for participation in the GaIN project. Most important for the long-term success of the network is the cooperative spirit and mutual trust demonstrated among HSLCG libraries in GaIN that provides an on-going example of effective networking for new GaIN members.

The role of the secondary node (hospital library) in the network has been as described in the grant proposal but there have been some clear strengths and weaknesses among the responsibilities assumed. Although it holds promise for the future, the sponsorship role of the secondary nodes has probably been the least successful component of the network. Hospital sponsorship responsibilities include nominating GaIN practice site participants and then providing the first line of service for these members. Hospitals supply practice sites with search and document delivery services as needed and troubleshoot for technical difficulties. The purposes of the sponsorship role are: (1) to enable hospital libraries to extend their services beyond the walls of their libraries and into the practice sites of physicians on their staff; (2) to distribute the work of providing information services throughout the network; and (3) to encourage involvement of GaIN librarians in network operations. It is now clear that it requires at best one year for hospital librarians (particularly untrained library managers) to incorporate GaIN in their daily work routine; to understand the basic technical procedures in microcomputer operation as well as the power of the system; and to value the capability of providing library services "without walls." The time constraints of the grant project limited the implementation of the sponsorship role. We are now, in the post-grant era, just beginning to see real interest among the first GaIN institutional members in extending GaIN services directly to members of their hospital staff.

Hospital librarian participation in network planning has been more extensive than anticipated. At their request, GaIN librarians are now meeting twice a year to discuss issues of mutual concern. These meetings are in addition to Advisory Board meetings and have been very useful to GaIN staff in identifying potential problem areas as well as areas of unmet needs. Task groups of GaIN librarians have also volunteered to work in specific program development projects.

Local hospital resource development has been achieved through GaIN. In addition to the five HSLCG members, the four Southwest Georgia Health Sciences Library Consortium hospitals had existing cooperative agreements for library services. However, prior to GaIN, the remaining seven institions had no formal agreements for access to library resources. Simultaneously with establishing their GaIN connections, the three Savannah hospitals formed a coastal area consortium. With encouragement from GaIN, the Brunswick hospital became a part of this group. GaIN was also instrumental in the establishment of the Brunswick and Douglas hospital libraries. GaIN serves as an umbrella organization for all these local consortia. Through the GaIN online services, union lists of serials and formalized intra-network agreements, GaIN significantly enhances bibliographic access at the local level, facilitates resource sharing among basic units, and supports in-network document delivery.

3. Network Management

The network is managed by the Director of the MUSM Library and the GaIN Coordinator. The GaIN staff consists of the Computer Operations Manager and the GaIN Program Assistant.

The GaIN Advisory Board, which consists of representatives from the

membership, has met as follows: October 7, 1983; May 17, 1984; November 13, 1984; October 1, 1985; and February 7, 1987. The major accomplishments of the Advisory Board are:

(1) participating in long and short-term planning task groups;
(2) initiating and maintaining liaison with the Medical Association of Georgia Computer Committee;
(3) serving as a communications vehicle for the GaIN membership;
(4) recruiting and approving new members;
(5) developing and approving by-laws;
(6) recommending price structure;
(7) participating in evaluation studies.

The GaIN hospital librarians meet regularly as a subgroup of the Advisory Board in order to discuss issues of particular concern to the librarians. They met June 10, 1985; March 14, 1986; and May 8, 1986. The major accomplishments of the GaIN Librarians Subgroup are:

(1) participating in long and short-term planning task groups;
(2) providing feedback on existing services and making recommendations for improvements;
(3) participating in evaluation studies and statistical reports;
(4) contributing to program development by setting network interlibrary loan guidelines, selecting journal titles for GaIN Medline, and planning cataloging service enhancements.

B. GaIN Services

AIM: The GaIN program will place the MUSM Library in an electronically responsive mode by installing a fully automated integrated library system... [which will] make available to the end-user multiple tracks for resource identification and use.

1. Network Online Services

The integrated library system at MUSM is central to the provision of information services to the GaIN network. Renovation of space in the MUSM library to house the GaIN computer was completed in March 1984. The renovation was fully supported by the School of Medicine and cost $17,600.

The minicomputer equipment (DEC PDP 11/44) and peripherals were selected in the fall of 1983. Delays were encountered in the purchasing and delivery of the computer but in May, 1984 all components were received. Diagnostics were performed on the system for six weeks and during the summer of 1984 a test file of the Washington University School of Medicine BACS integrated library system was mounted. At the end of September, 1984, testing of the BACS software was completed and the GaIN system became operational. Dial-access to the system, and the implementation of network functions, became available in January 1985.

Using BACS software, the MUSM Library has automated the catalog, circulation, serials control, acquisitions and library management functions. Additional functions have been added to GaIN to serve network needs either by enhancements to BACS or through the Veterans Administration Kernel software that was made available on the GaIN system in March 1986. Much effort has been expended in designing and presenting these functions on the system in a user-friendly format. Future enhancements will also focus on the novice computer user.

GaIN online services are designed to give network members a choice of using data bases personally or having a librarian implement the information search. Online services available to network users are:

a) GaIN Online Catalog:

The online catalog is a union catalog containing the cataloged records of

the MUSM Library and GaIN member libraries. By the end of the grant period, the online catalog contained a total of approximately 18,200 records from the MUSM and hospital libraries. The catalog uses OCLC archive records along with BACS integrated library system software.

All MUSM cataloging records were in machine readable format prior to the GaIN project with archive tapes maintained at SOLINET. Cataloging staff mapped MUSM OCLC fields to BACS search keys in order to tailor the online catalog search capabilities to GaIN needs. The manual authority file was converted to an online format and all cataloging records were reviewed for consistency and for local changes required for the GaIN database. Serials records were automated through Philsom and integrated into the online catalog. The front-end menu of the catalog was designed for GaIN users. The online catalog was available for patron use in October, 1984. In August, 1985 the card catalog was dismantled and fully replaced by the online catalog.

The MUSM library began offering a current cataloging service for hospital libraries in 1983. This service provides hospitals with catalog cards and processing packages and also enables input of bibliographic records into the GaIN database. The hospital records are an asset to the GaIN catalog: seventeen percent of their records are unique to the database (Illus. 2). Currently 19 hospitals subscribe to this service. A retrospective conversion project (of imprints 1970+) was undertaken in the final year of the GaIN grant, with the result that the four major hospital library collections are now fully accessible through the online catalog (Illus. 3). Preliminary retrospective conversion records have been prepared for an additional 5 hospital libraries.

b) Consultants' Registry: This file contains names of Georgia health professionals who are willing to consult in specialized areas. The GaIN Referral Advisory Committee was formed to set guidelines, identify potential GaIN consultants, and review applications for inclusion in the file. The file, which is regularly updated, contains the names of 115 specialists who are available to consult in many areas such as snake bites, hypertension or surgery.

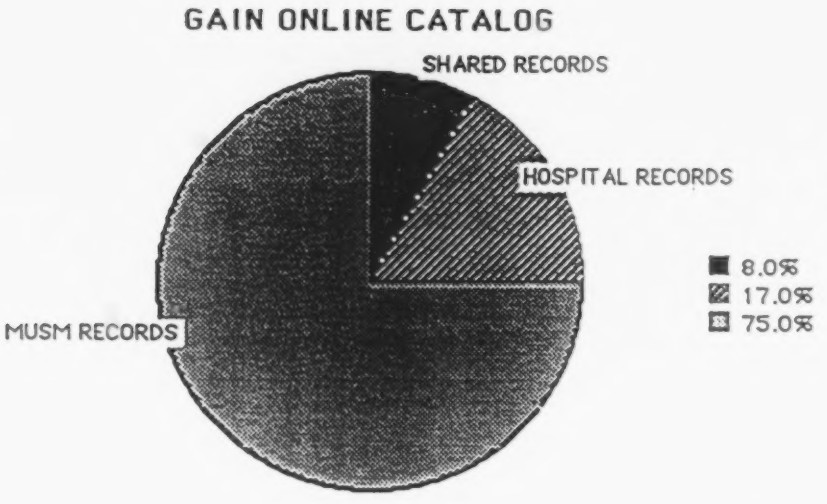
c) Continuing Education Bulletin Board: This GaIN function lists upcoming continuing education meetings of interest to the GaIN membership. Although important national meetings are listed, the emphasis is on local and regional events. GaIN hospitals are encouraged to list continuing education events sponsored by their institutions. The file usually contains approximately 100 listings per month.

The early editions of the GaIN newsletter contained a print-out of the continuing education file. The file subsequently became too large for distribution through the newsletter.

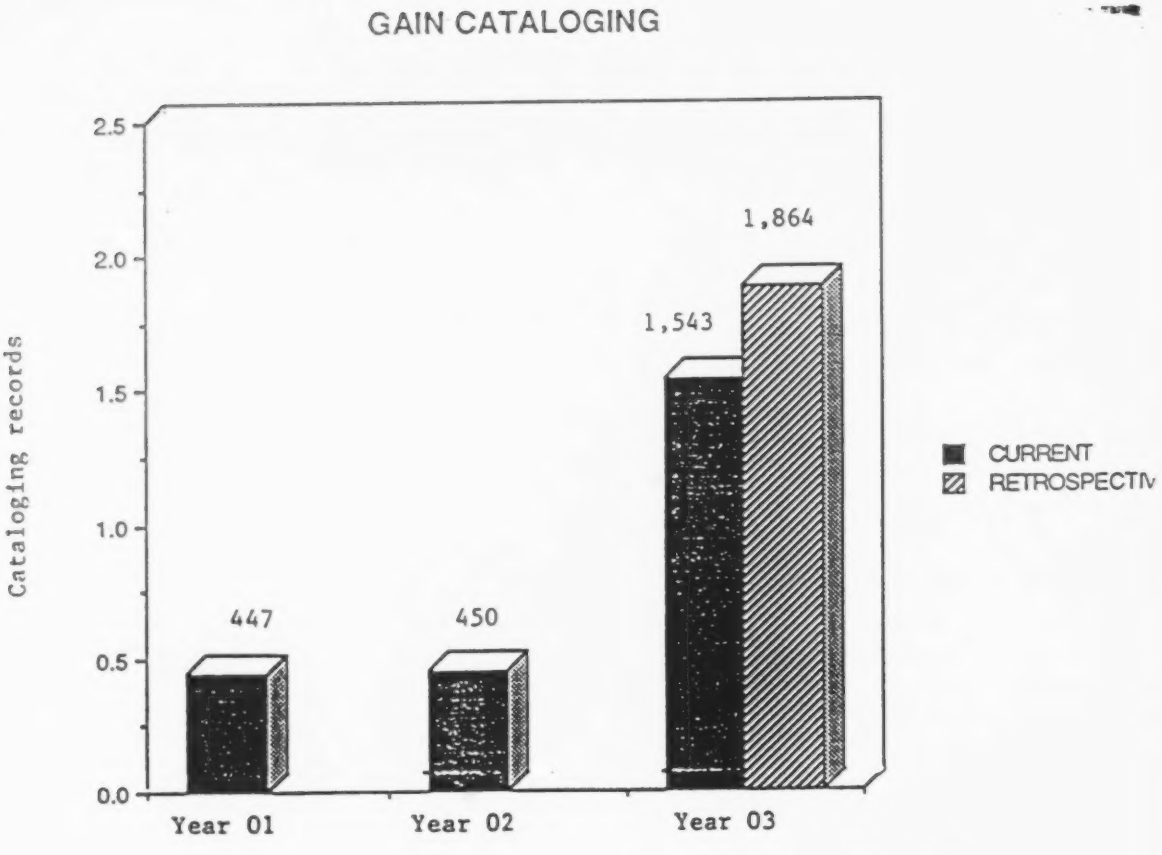
When fully operational, the teleconferencing function described below will contribute to meeting additional continuing education objectives.

d) Information for Patient Management: The IPM function provides the GaIN user with an online search request form which, when completed, is transmitted to GaIN. The IPM request file is checked regularly at MUSM and responses are provided within one-half working day.

e) List Search: This file serves as the Medline mail box and also



Illus. 2



Illus. 3

provides storage for literature searches performed through the GaIN gateway. When a librarian performs a search for a GaIN member, the requestor is notified by electronic mail that the search is completed. By using "List Search," the requestor can immediately download the search. The "List Search" function is also used by individual GaIN members who perform their own searches through the GaIN gateway and wish to store these searches on the GaIN computer.

f) GaIN Medline: This service provides the GaIN network with a locally mounted subset of Medline that can be searched through BACS SEARCH user-friendly software. The subset consists of a three-year file of approximately 400 periodicals. Abstracts are included in order to provide as much information as possible on the system, particularly for rural physicians who do not have the paper copy of journals immediately at hand.

The journal titles in the file were selected by a committee of GaIN librarians. Tape loading required more time than expected with the result that the system was not fully current until November, 1986.

g) GaIN Gateway: The GaIN gateway allows members to connect through the GaIN computer to national data base services such as the National Library of Medicine, BRS, or Compuserve. For users of the gateway, GaIN offers Medline training for the health professional and a BRS Colleague group subscription.

The gateway function replaces the simultaneous remote search capability proposed in the grant application. The gateway accomplishes the same objective of SRS which was to connect the end-user to a remote data base and does so through a more efficient and cost-effective process.

h) Electronic Mail: An objective of GaIN is to foster a sense of collegiality among network members, particularly to reduce the professional isolation of geographically remote rural physicians. The electronic mail system was initially provided through the integrated library system software, but in late 1985 upgraded to a more sophisticated service using the Veterans Administration software.

i) Teleconferencing: This recently added capability supports a large number of simultaneous conferences. Although still in the test mode, the teleconferencing function has been used recently by such groups as the MUSM Department of Family Medicine, the Medical Association of Georgia Computer Committee, and the Health Sciences Libraries of Central Georgia planning committee.

2. Network Educational Activities

Computers are still unfamiliar to the majority of practicing health professionals. Therefore, educational activities were planned to be an important part of the GaIN project. GaIN has sponsored general workshops, provided user training for the network, and has also disseminated information about the project to a wider audience through papers and presentations.

Annual GaIN Program: In response to a general need among Georgia health professionals for information on computers in medicine, GaIN offers an educational activity once a year. These seminars are not limited to GaIN members but are publicized to all Georgia physicians and other health professionals:

May 17, 1984 "Introduction to the Use of Computers in Medical

9:00 - 5:00	Office Management" - Benjamin Banahan, Ph.D. Demonstrations were given by eight vendors. Participants: 61
Sept. 24, 1985 9:00 - 5:00	"Medline Searching for the Health Professional" - Linda Garr Markwell and Alice deVierno. Participants: 14
May 8, 1986 9:00 - 12:00	"New Developments in Medical Computing" - Drs. William Headley, John Zimmer, and David Mishelevich Participants: 35
May 8, 1986 1:00 - 5:00	"Introduction to the IBM PC" - Dr. Ron David Williams Participants: 29

3. User Training: GaIN training has presented some unique challenges for the MUSM Library staff. Besides teaching use of GaIN software, the staff have also become involved in introducing personal computers to network members and teaching them how to use communications, word-processing and operating system software.

   a. Primary Node (Individual) Training

   Training physicians on GaIN has been less labor-intensive than training the librarians. Physician members generally have their own equipment and software and are familiar with using their systems. Also, physician training takes less time because they are not required to learn as many functions of the GaIN software as the librarians. Generally, physician training can be accomplished in 1 to 1-1/2 hours. These physician training sessions have taken place mostly at MUSM. A few physicains were trained in GaIN hospitals or in nearby offices at the same time the librarians received their training. No group sessions were held for physician training.

   The staff has discovered that most physicians do not need a training session. The GaIN User Instruction Manual that is sent to physicians when they join the network is sufficient for most. The manual outlines step-by-step how to access the system and how to use the GaIN functions. The manual, after undergoing several revisions, is now a good, usable document which is clearly very helpful to the new GaIN user.

   b. Secondary Node (Hospital Training):

   The first training sessions for the Year 01 hospital libraries were held at MUSM and covered word processing, spreadsheet and communications software. Comments from evaluations of the sessions revealed that the librarians felt overwhelmed by the amount of information presented and that they wanted hands-on training sessions to practice what they were learning.

   Since none of the librarians joining GaIN to date have had experience with using personal computers, GaIN staff decided in Year 02 that the initial training should be held at the hospital site after the installation of equipment was completed. This allowed the staff to make sure the equipment, phone lines, etc., were operating properly and gave the librarians a chance to learn in their own settings. Usually the installation and training took 1-1/2 days. During the session, the librarian was introduced to the computer and use of the DOS operating system, Crosstalk communications software and GaIN software. Experience has shown that one-on-one training, and allowing the user to practice while learning, is the most effective way to introduce a large amount of new information. The drawback to this approach is the

expense in both staff time and travel costs.

As the librarians were being trained, new features were being added to the system. It soon became obvious that refresher and up-date sessions were needed. To accomplish this at minimal expense, the MUSM library invited the GaIN librarians to MUSM for 1/2 or 1 day sessions. To date, the sessions have focused on the new version of electronic mail and the GaIN-Medline software. Several terminals are set up in a conference room to allow for "hands-on" practice during the sessions. These sessions have been rated as successful by the GaIN librarians.

4. GaIN Promotion: Publicizing the network and presenting GaIN to potential members or others interested in the network model was a major activity throughout the grant period. The GaIN newsletter, published quarterly, is distributed to 1009 Georgians and to 95 out-of-state subscribers. At the end of 1985, the newsletter was given a new format in preparation for seeking post-grant publication support by advertisers. The newsletter has been a key promotional tool for the network (Appendix A).

The GaIN brochure and display have been widely used to provide general information about the network. Approximately 3,000 brochures have been distributed. The display has been used at 18 professional meetings. A folder providing information on GaIN for the physicians was developed in 1986 (Appendix A). Papers and publications are cited in Section IV. A "how to" manual describing the GaIN model was outlined in some detail in 1985 but has not been accepted for publication. A workshop on the GaIN model is planned for 1987.

III. EVALUATION

A major component of the GaIN project has been its systematic and continuous evaluation. At the grant review site visit at MUSM on February 17, 1983, the CIPP (Context, Input, Process and Product) model was presented as the format under which accomplishment of project aims would be measured. CIPP evaluation results have provided the framework for GaIN decision-making during the three-year grant period. Within the context of the CIPP evaluation methodology, GaIN evaluation has focused on user attitudes and information habits, the effectiveness of training and educational activities, patterns of system usage, and impact of GaIN on network libraries and users. It must be emphasized that all data reported are based on the comparatively small population of GaIN users.

The evaluation instruments referred to in the following sections are attached to this report in Appendix B.

A. Context Evaluation

Context evaluation helps monitor the regular program operation, set objectives, define the environment, provide information on needed changes, and diagnose problems that prevent needs from being met and opportunities from being used. Sources of information for GaIN's context evaluation have included the GaIN Advisory Board, the GaIN Hospital Librarians Subgroup and network primary nodes.

1. Advisory Board

The GaIN Advisory Board has participated in context evaluation by:

(1) insuring that the intent of GaIN is being fulfilled;
(2) providing advice on implementation of GaIN;
(3) recommending new services by assessing and representing the needs of network members;
(4) recommending priorities among locales requesting GaIN services.

The GaIN Hospital Librarians Subgroup has also provided input into this level of evaluation by:

(1) providing advice on implementation of GaIN, particularly in hospitals but also in clinical sites;
(2) recommending individually and through group process modifications and improvements in services based on their experience.

2. Physician Pre-Questionnaire

Context evaluation data have also been collected by administering a questionnaire to physicians when they joined the network. The questionnaire results helped define the GaIN membership needs and expectations and helped set objectives for GaIN training. This questionnaire also served as a basis for subsequent product evaluation. The purposes of the questionnaire were to measure physicians' comfort levels with technology, their expectations of use of GaIN services and impact of GaIN on patient care, and their awareness of information needs and local sources of information.

Of the 61 questionnaires distributed to physicians before they began using GaIN, 44 were returned. Almost sixty percent of the respondents reported that they had used a computer daily during the two years prior to joining GaIN. Thirty percent of the respondents reported some prior computer experience. Ten percent of respondents reported that they had never used a computer before tying into GaIN. These results show that many GaIN physician members were knowledgeable about computers before they began using the GaIN system.

Respondents in clinical sites expected to use computers as follows:
Priority #1: Patient billing and insurance claims
Priority #2: Access to GaIN network
Priority #3: Patient scheduling
Priority #4: Accounting
Priority #5: Clinical decision making
Priority #6: Word processing
Priority #7: Database services such as AMA/Net, Medline, BRS Colleague, etc.

Although database services were ranked as Priority 7 among expected uses, actual connect-time data show considerable physician time in these services.

In this questionnaire, physicians reported preferences in using information resources as follows: (1) books; (2) journals; (3) colleagues; (4) data base services; (5) audiovisuals. Their final evaluation of GaIN functions corresponded with these preferences among information formats, with literature searching and the online catalog perceived as very useful GaIN services, followed by the continuing education bulletin board and the consultants referral file which were considered possibly useful.

Comments on the effect of computers on the future of medicine were wide-ranging but helpful in describing practitioners expectations. Suggestions for new GaIN services included drug information, epidemiological data, continuing education activities, and transmission of patient care data.

B. Input Evaluation

Input evaluation provides information for determining the kind and amount of resources needed, and the manner in which they are used to achieve program objectives. GaIN input evaluation was provided by GaIN and MUSM library staff and by GaIN consultants.

Since its installation in 1984, the GaIN software has been constantly monitored by the MUSM Library. Reviews of daily use and annual software critiques have resulted in recommendations for system modifications. Dr. Simon Igielnik, author of the BACS software, visited the library twice during the grant period (August, 1984 and April,

1986) to meet with the staff to discuss and implement software changes. In addition, system maintenance, enhancements and dialogue with the library staff occur regularly through a telephone link with the system.

Dr. David Mishelevich, GaIN consultant, maintained regular contact with MUSM as the GaIN project was designed and implemented. He visited MUSM twice during the grant period (August, 1985 and May, 1986) to review the progress of the grant and to meet with staff. Dr. Mishelevich also presented a seminar on artificial intelligence and met with the GaIN librarians. Dr. Mishelevich has agreed to remain a consultant beyond the grant period.

Dr. Ron David Williams, professor at Emory School of Library and Information Science, met with the staff twice during the grant period to concentrate on specific technical problems. Dr. Williams gave the staff suggestions on which microcomputer and software to order for the hospitals (January, 1984). The following year he met with GaIN staff to suggest solutions to the telecommunications problems on the system (December, 1985).

In September, 1985 the GaIN staff and representative GaIN librarians met with Mary Lou Dykes, public relations consultant, to design an information packet about GaIN for physicians. A sample of the information folder is included in Appendix A.

The expertise that was shared with the staff by these consultants, coupled with the staff's growing sophistication with technology, gave strong direction to the GaIN program and helped in the achievement of its goals.

C. Process Evaluation

Process evaluation provides periodic feedback to program management. It maintains a record of procedures as they occur, detects or predicts defects in procedures, and provides information for making program decisions. Sources of information for process evaluation include computer-based usage statistics, statistics on GaIN services, hardware troubleshooting service provided by MUSM to hospital and physician members, educational and training session evaluations and staff meetings which monitor on-going operations.

1. Usage Statistics

GaIN is an evolving network. In the first twenty months of operation, a number of variables influenced the system usage statistics. Because the overall base of membership is still quite small, the number of new users each month, and characteristics of these users, significantly affects the monthly data. Also, system problems were experienced while staff learned how to optimize system access. While a few functions have been available on the system since it was first implemented, new capabilities have been introduced regularly into the GaIN network. For example, there will be major shifts in the data during late 1986 and in 1987 because GaIN Medline is available. There has also been an effort made by GaIN staff during 1986 to help members reduce connect time, and therefore lower communications costs, by teaching uploading and downloading techniques.

There are many variables affecting the early system usage statistics but nonetheless, after twenty months of online operation, some patterns of use are emerging that begin to describe the value of the network. The primary nodes (physician members) are connected to the GaIN network on the average of 1 hour to 1.5 hours per month (Illus. 4). The networks most valued service to physicians, as measured by its use, is its electronic mail system, which accounts for seventy-four percent of their connect time (Illus. 6). The second most valued service is access to medical literature (twenty-three percent of connect time used), which includes use of the gateway function to national databases, the online catalog, the IPM literature search request form, and the list search function. Use of the continuing education file and the consultants' registry has consumed less connect time but business in these functions can also be transacted more quickly.

PRIMARY NODES

CLINICAL SITES

GaIN SYSTEM USE, 1985 - 1986

	Month	Sites Connected	Total Connect Time	Average Monthly Connect Time/Site
1985	January	10	702 (11 hrs 42 min)	70 (1 hr 10 min)
	February	9	735 (12 hrs 15 min)	82 (1 hr 22 min)
	March	10	583 (9 hrs 43 min)	58 minutes
	April	18	1067 (17 hrs 47 min)	59 minutes
	May	17	890 (14 hrs 50 min)	52 minutes
	June	11	508 (8 hrs 30 min)	46 minutes
	July	15	650 (10 hrs 48 min)	43 minutes
	August	14	435 (7 hrs 15 min)	31 minutes
	September	14	516 (8 hrs 36 min)	37 minutes
	October	14	798 (13 hrs 18 min)	57 minutes
	November	15	840 (14 hrs)	56 minutes
	December	9	317 (5 hrs 18 min)	35 minutes
1986	January	11	716 (11 hrs 56 min)	65 minutes
	February	11	725 (12 hrs 5 min)	66 minutes
	March	12	1341 (22 hrs 21 min)	112 (1 hr 52 min)
	April	11	2012 (33 hrs 32 min)	183 (3 hrs 3 min)
	May	18	1843 (30 hrs 43 min)	102 (1 hr 42 min)
	June	12	2068 (34 hrs 28 min)	172 (2 hrs 52 min)
	July	11	4063 (67 hrs 43 min)	369 (6 hrs 9 min)
	August	22	2633 (43 hrs 53 min)	119 (1 hr 59 min)

SECONDARY NODES

INSTITUTIONAL SITES

GaIN SYSTEM USE, 1985 - 1986

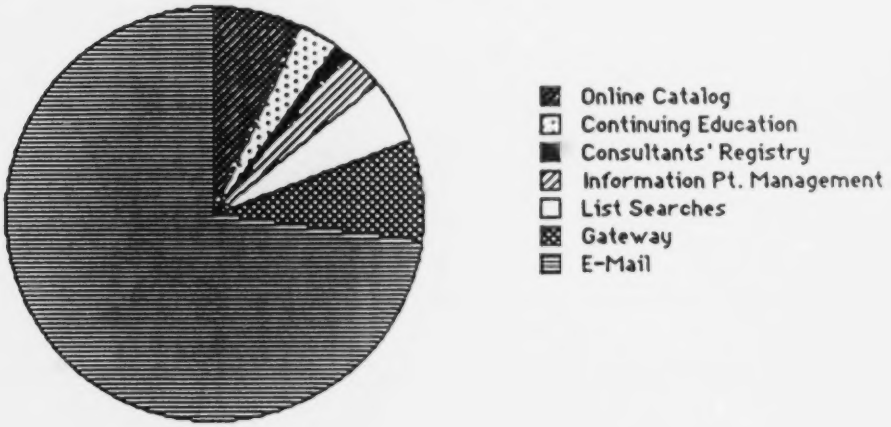
	Month	Sites Connected	Total Connect Time	Average Monthly Connect Time/Site
1985	January	5	957 (15 hrs 57 min)	191 (3 hrs 11 min)
	February	5	945 (15 hrs 45 min)	189 (3 hrs 9 min)
	March	8	1432 (24 hrs 27 min)	179 (2 hrs 59 min)
	April	7	1269 (21 hrs 9 min)	181 (3 hrs 1 min)
	May	8	890 (14 hrs 50 min)	111 (1 hr 51 min)
	June	8	1480 (24 hrs 40 min)	185 (3 hrs 5 min)
	July	7	1380 (23 hrs)	197 (3 hrs 17 min)
	August	6	1119 (18 hrs 39 min)	187 (3 hrs 7 min)
	September	9	976 (16 hrs 16 min)	108 (1 hr 48 min)
	October	10	1393 (23 hrs 13 min)	139 (2 hrs 19 min)
	November	11	1536 (25 hrs 36 min)	140 (2 hrs 20 min)
	December	12	1315 (21 hrs 55 min)	110 (1 hr 50 min)
1986	January	13	1560 (26 hrs)	120 (2 hrs)
	February	13	1572 (26 hrs 12 min)	121 (2 hrs 1 min)
	March	15	1299 (21 hrs 39 min)	87 (1 hr 27 min)
	April	14	3601 (60 hrs)	257 (4 hrs 17 min)
	May	12	2019 (33 hrs 39 min)	168 (2 hrs 48 min)
	June	11	1914 (31 hrs 54 min)	174 (2 hrs 54 min)
	July	7	995 (16 hrs 35 min)	142 (2 hrs 22 min)
	August	7	1399 (23 hrs 19 min)	200 (3 hrs 30 min)

Illus. 5

PRIMARY NODE

CONNECT TIME ANALYSIS BY FUNCTION

JAN 1985 - AUG 1986



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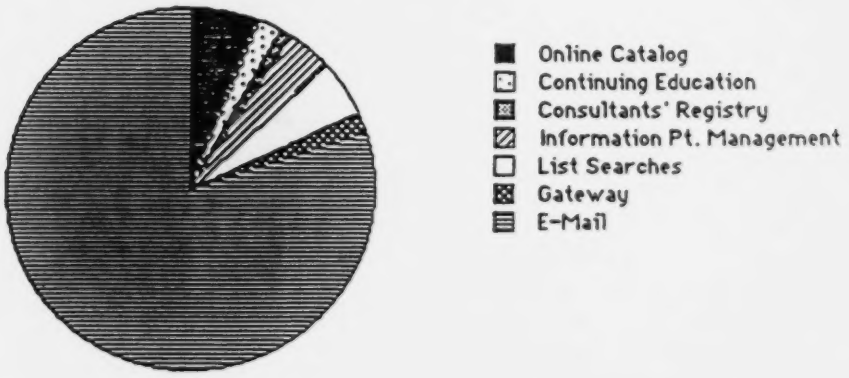
SECONDARY NODE

CONNECT TIME ANALYSIS BY FUNCTION

JAN 1985 - AUG 1986



Illus. 7

The secondary nodes (institutional members) are connected to GaIN on the average slightly less than 3 hours per month (Illus. 5). The most used functions to date among hospital librarians are electronic mail and electronic transmission of interlibrary loan requests (Illus. 7). GaIN Medline should influence the distribution of hospital library connect time significantly during 1987. Use of the medical literature functions in GaIN accounted for seventeen percent of the hospital connect time: connect time in the online catalog was followed closely by connect time in the list search function and in the IMP literature search request form. Although the online catalog was mounted on the system primarily with the librarians in mind, it has been used proportionately more by the physicians than by the librarians. The IPM and list search functions were used by GaIN librarians who do not have Medline training and were requesting literature search services from the MUSM library.

2. GaIN Services

Units of information service to the network (Illus. 8) are numbers of information products used within the network. These include system accesses by function, search services and intra-network interlibrary loans. Although training and cataloging were major services provided to the network, they are not recorded here because these services enabled the use and production of products. Units of service provide the basis for the cost effectiveness study on p. 16.

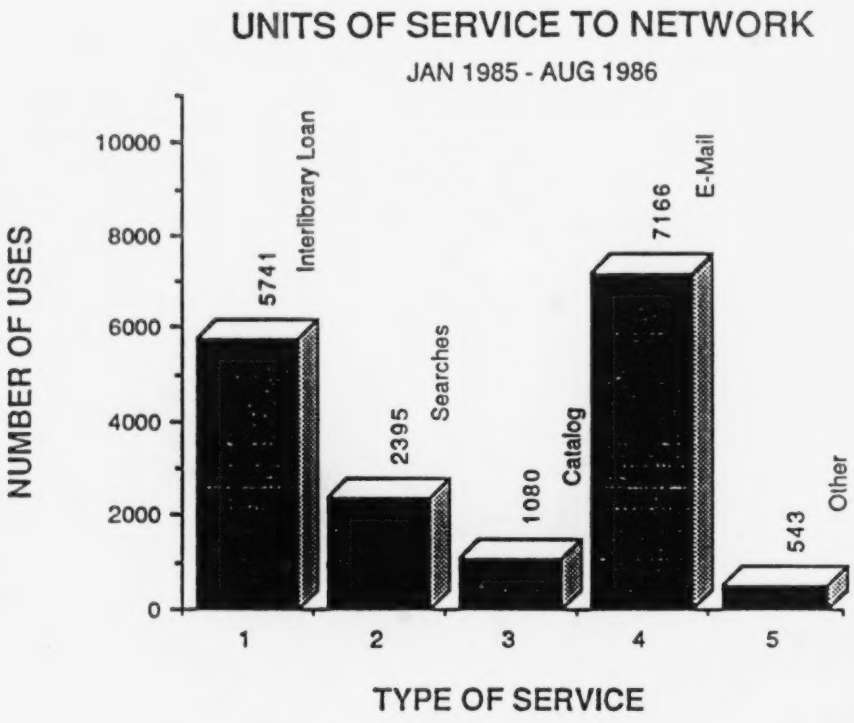
The system access data show 16,925 accesses to GaIN functions by the network from January 1985 to August 1986. The distribution by function of these accesses correlate with the connect time data rankings in use of GaIN functions. Electronic mail was the most often accessed GaIN function, followed by medical literature services. The predominance of end-user searching (Illus. 9) shows the value placed on the GaIN gateway service. When GaIN Medline statistics are available for a comparable period of time, the proportion of end-user searching may increase although use of the gateway may decrease (Illus. 10). In-network interlibrary loan statistics (5,741 transactions) give evidence to the level of inter-institutional cooperation within the network.

3. GaIN Training and Educational Programs

Evaluations have been implemented at the close of all group training and educational programs. Individual training sessions were also evaluated less formally and this feedback was used by instructors. Because of the lack of computer knowledge among members who joined GaIN, training was more labor-intensive than originally anticipated and required sessions on hardware as well as software. Through individual and group sessions, training was provided to 156 GaIN members during the three-year grant period. In addition, training was provided to MUSM students and in-house GaIN users.

The training provided by GaIN staff has been well received. This support to the user, the human element in a computer network, has been a key component in the general success of the network. Evaluation of Year 01 training sessions for librarians did result in changing initial training from group to individual sessions. Updates are given in group sessions. In the evaluations from the GaIN librarians group update sessions, twenty-three of twenty-four responses rated these sessions as "very useful." Evaluations of physician individual training sessions have been equally supportive.

The GaIN educational programs have also been successful and will be continued on an annual basis. The first seminar on Use of Computers in Medical Office Management (1984) received an overall evaluation of excellent or good by ninety percent of the 61 participants. The course on Medline Searching for the Health Professional (1985) was attended by 14 registrants. The instructors were rated very highly and all but one participant felt that after the course they understood the basics of Medline.



1. In-Network Interlibrary Loans: 5,741

2. Search Services:

Searches Performed:	835
Gateway Accesses:	735
List Search Accesses:	533
IPM Accesses:	292
Total:	2,395

3. Online Catalog Accesses: 1,080

4. Electronic Mail Accesses: 7,166

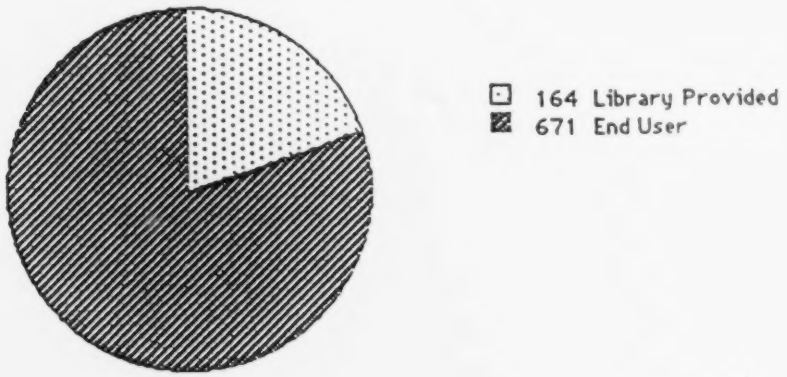
5. Other Uses:

Consultants' File Accesses:	168
CE File Accesses:	375
Total:	543

Illus. 8

LIBRARY SEARCHES PROVIDED FOR GAIN MEMBERS

JAN 1985 - AUG 1986

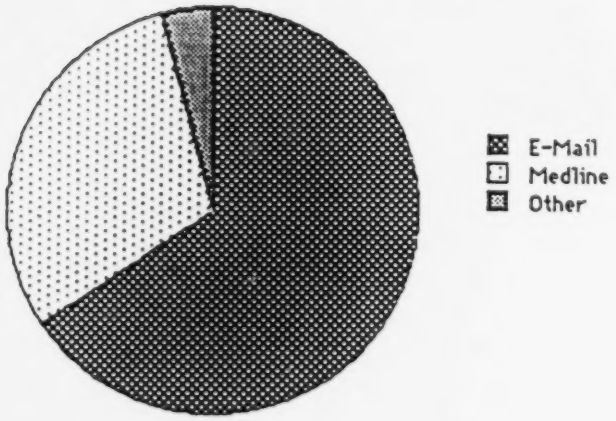


Illus. 9

GaIN CONNECT TIME ANALYSIS

NETWORK USAGE DATA

SEPT 1986



Illus. 10

The seminar on New Developments in Medical Computing (1986) had two sessions. The presentation on Electronic Teleconferencing in Medicine was rated highly by sixty-two percent of respondents; the session on Artifical Intelligence was rated highly by eighty-three percent of respondents. The hands-on workshop on use of personal microcomputers was considered very useful by forty-five percent of participants and somewhat useful by fifty-five percent of participants.

Evaluation of training and educational programs provide necessary input for improvement of these activities as well as give direction for future programs and educational needs.

4. Troubleshooting and Staff Input

In monitoring and addressing problems occuring in the network, the GaIN staff has observed only two recurring issues. Frequently problems experienced by GaIN members relate to lack of knowledge about the hardware and software being used at these sites. Training and user support will continue to be a major component of the GaIN network but until this "technology gap" is bridged--by production of truly "user-friendly" hardware and software and by increased computer literacy in the general population--user education will continue to be a challenge for GaIN staff.

Both GaIN users and GaIN staff have identified telecommunications as the single most troubling problem in the network. There are 23 different telephone companies in the State of Georgia and line noise is a significant problem. GaIN staff brought in a consultant in December, 1985 who made specific technical recommendations. Also, recently introduced telecommunications equipment may improve network communications.

In summary, process evaluation has enabled GaIN staff to identify which GaIN functions are most useful to the network and in which areas of the network there are problems. Little used functions will be carefully evaluated during the next year while more frequently used services will be enhanced. An effort will be made to work toward solutions in problem areas.

D. Product Evaluation

Product evaluation measures and interprets outcomes and assesses cost-effectiveness. Sources of information for product evaluation include the hospital and physician member profiles, medical student questionnaires, the GaIN physicians and librarians end-of-project questionnaires, and the cost analysis.

1. GaIN Membership Profile

The GaIN network was conceived and designed as an outreach project. The membership reflects this intent. The institutional members are 16 hospitals and one multi-county public health department. More than half of the institutional members are located in rural areas. The hospitals are city, county and state facilities and private, non-profit facilities. Approximately one-fourth of the hospitals are small (50-150 beds), one-half are in the mid-range (150-400 beds), and one-fourth have more than 400 beds. Four hospitals have residency programs; a number are involved in nursing and allied health education; and the smaller ones focus entirely on patient care.

Most medical specialties are represented among the physician members in the network; however, almost half of GaIN physician members are in primary care. Forty percent of these physicians practice in rural areas and in towns with populations under 20,000; 20 percent are in mid-sized towns (populations $<$ 100,000); and 40 percent are in large cities (populations $>$100,000). The ages of the GaIN physicians parallel the age distribution of physicians in general: 40 percent are under 39 years old, 50 percent are between 40 and 59 years, and 10 percent are older than 60 years.

2. Medical Student Data

A questionnaire was administered to freshmen medical students during the falls of 1983, 1984 and 1985. The purpose of the questionnaire was to collect information that would allow a comparison between student information pathways and information-seeking behaviors before the GaIN system was implemented and after the GaIN system was operational.

Both the questionnaire design and its administration by tutors within the tutorial setting successfully disassociated the instrument from the Library. The questionnaire results showed that students explored an average of eight learning issues related to the Biomedical Problem under discussion. Information resources consulted for the tutorials were (in order of frequency of use) as follows: books, journals, resource professors or other medical students, and audiovisuals. The open questionnaire was unstructured in order to avoid leading the students but as a result failed to systematically elicit pathways between first, second, and subsequent resources used. Therefore, pre- and post-GaIN pathways could not be compared. However, the data indicated a growing trend during the grant period toward more frequent use by medical students of computer searching of the literature.

The increased comfort level among MUSM medical students with technology is the result of changing times and the result of the opportunities that GaIN is providing at MUSM. In 1983, one MUSM medical student owned a personal microcomputer. In a recent questionnaire to the MUSM freshmen medical students (Class of 1990) in which 18 of 24 responded, twenty-eight percent of students said they owned a microcomputer before entering medical school, and ninety-five percent of respondents said they planned to purchase a microcomputer for their medical practice. The Class of 1990 has enthusiastically responded to GaIN, with one-hundred percent of students attending all training sessions although attendance at these sessions is voluntary. In fact, many students have requested additional in-depth training sessions. Several faculty members now routinely incorporate GaIN in the tutorial process. GaIN is also part of the freshmen selective course on computers offered by the MUSM Department of Family Medicine.

3. GaIN Physicians Evaluation of the GaIN Project

In May, 1986, GaIN physicians were surveyed regarding their perception of the value of GaIN. Of the 59 physicians contacted, 51 responded (eighty-six response rate). In response to being asked to rate their perception of the role of microcomputers in medical practice in 1990, ninety-two percent rated microcomputers as important or very important. While 43% of respondents rated GaIN as moderately to very important in their practice today, 49 out of 51 respondents (ninety-six percent) rated their perception of the role of GaIN for Georgia physicians in 1990 as moderately to very important:

23 of 51 (45%) rated GaIN in 1990 as very important;
15 of 51 (29%) rated GaIN in 1990 as important;
11 of 51 (22%) rated GaIN in 1990 as moderately important;
1 of 51 (2%) rated GaIN in 1990 as slightly important;
1 of 51 (2%) didn't know.

GaIN has raised expectations for computer services among Georgia physicians. These physicians are anticipating a growing number of information support services through GaIN so that by 1990 almost half of these practice sites see GaIN as being a very important part of their practice. To respond to these expectations will be a challenge for GaIN management.

A sample of GaIN physicians was queried regarding relative usefulness of the existing GaIN online services. Physician responses are shown on Illus. 11 along with the librarians' responses. Physicians place higher values than librarians on almost all GaIN functions. These data indicate how greatly information at the practice site

is valued and they give support to the recommendation in the Matheson-Cooper Report that biomedical information linkages should be established with our nation's practice sites.

4. GaIN Librarians Evaluation of the GaIN Project

In the end of project evaluation questionnaire, GaIN librarians were asked to rate the overall importance of GaIN as an addition to their library services. Ten of fifteen rated GaIN as useful to extremely useful. The GaIN function most valued was electronic mail, followed closely by the gateway (Illus. 11). It is expected that, with GaIN Medline now fully loaded, the gateway use will be in great part replaced by use of GaIN Medline.

GaIN librarians were queried about the GaIN cataloging service. Responses were received from 12 of the fourteen librarians. The majority of librarians use the service monthly. Nine of the 12 librarians responding rated the value of the service as high or very high. Comments about the service noted the professional quality of products and efficiency of service. When asked what they would like changed or improved, nearly all librarians indicated satisfaction with the service as it is now except that a few (4 of the 14) would like to see cataloging fees lowered. (The current fee for a complete processing package is $2.00 per title.)

In the end-of-grant summary evaluation, training sessions were perceived as very useful. Fourteen out of fifteen respondents rated the initial training as useful to extremely useful; fourteen out of fifteen respondents rated the electronic mail update as useful to extremely useful; eleven out of twelve respondents rated the GaIN Medline training session as useful to extremely useful; nine out of thirteen respondents rated the other training sessions (word processing, downloading, etc.) as useful to extremely useful. The educational seminars were also well received by the librarians who attended these: nine of ten rated these sessions as useful to extremely useful.

Although none of the GaIN librarians had used a microcomputer prior to GaIN membership, most (13 of 15) are using the microcomputer regularly for a variety of applications besides GaIN, from word processing to graphics and data base management. All fifteen librarians reported using their microcomputers weekly or more frequently. All fifteen librarians also ranked microcomputers as extremely useful (5 on a scale of 1 to 5) to librarians in 1990. Eleven of fourteen librarians believed microcomputers would be equally valuable to physicians in 1990.

In response to being asked how GaIN has affected the GaIN librarians' ability to provide library services, the librarians responded as follows:

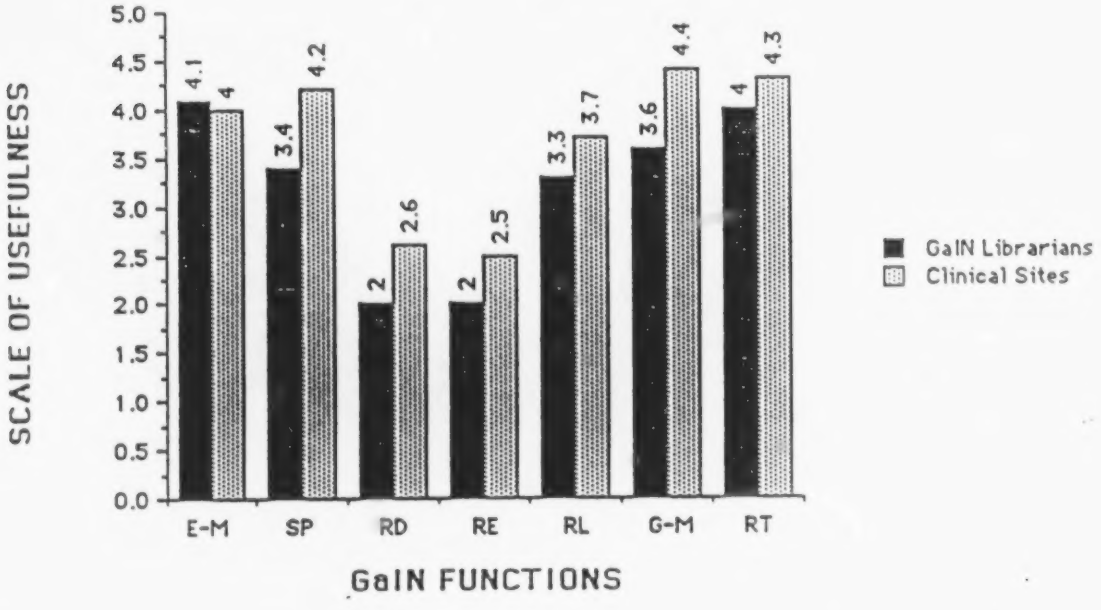
13 said GaIN had increased the number of services they could offer;
12 said GaIN had increased the visibility of their library;
13 said GaIN had enabled them to extend their library services beyond the walls of the library;
11 said GaIN introduced automated services to their library;
1 said GaIN had no effect.

5. COST EFFECTIVENESS

At the end of the first full fiscal year of online services (September 1, 1985--August 31, 1986), an effort was made to assess the cost effectiveness of the GaIN network. GaIN costs were compared to what consumers would pay for equivalent services.

The definition of equivalent services was difficult. GaIN is an innovative model and for most of its functions there are not comparable services already priced in the

VALUE OF GaIN FUNCTIONS AS PERCEIVED BY USERS*



*Adjusted based on number of respondents

Illus. 11

Key:

E-M: Electronic Mail
SP: Online Catalog
RD: Consultants' Registry
RE: Information for Patient Management
RL: List Search
G-M: GaIN Medline
RT: Gateway

marketplace. Most important, prices are not true values. Prices often do not reflect critical non-monetary benefits that may be associated with a product. Some of the major non-monetary benefits of GaIN include the convenience of having a variety of information resources available in one package, the value of having information at the time of need, improvement in the quality of patient care, and reduction of professional isolation of rural physicians.

The basis of the cost-effectiveness ratio (C/E) is the average unit cost of GaIN services to the network:

1985/86 cost of operating GaIN network:	$62,143
1985/86 units of service provided:	11,327
Average cost per network unit of service:	$5.49

Network operating costs include all direct costs associated with support of the network, such as the Program Assistant salary, supplies, and telecommunications. Indirect costs are also included in the network operating costs at the rate of twenty percent of system costs. Units of service are numbers of accesses by the network members to GaIN functions between September, 1985 and August, 1986.

The cost-effectiveness analysis compares current prices of comparable services with the average cost per network unit of service (Illus. 12). The resulting C/E ratio indicates that GaIN services are being provided at one-half the cost of comparable services. Although this is an excellent C/E ratio, particularly for a fledgling network, it is expected that cost efficiency will be even greater during the next few years because the number of units of service provided to the network will increase as the network membership expands.

E. Evaluation Summary

The GaIN project has accomplished the aims set forth in the grant proposal. Continuous monitoring of the project under the CIPP evaluation methodology by GaIN staff and consultants and input by GaIN users have resulted in some minor program modifications that have improved services.

Key points in the evaluation studies were:

(1) Most physicians joining GaIN were already somewhat familiar with microcomputers; no librarians had had previous microcomputer experience.
(2) Physicians use GaIN an average of 1.5 hours per month; librarians use GaIN an average of 2.6 hours per month.
(3) GaIN online services most used and most valued are electronic mail, the gateway, GaIN Medline, the online catalog and list search. Total system accesses by network members during the first 20 months were 16,925.
(4) Generally GaIN physicians place slightly higher values on GaIN functions than GaIN librarians. These responses indicate how greatly information at the practice site is valued.
(5) GaIN training and educational programs have been rated highly by participants. This local support has differentiated GaIN from national information services and has been a key to the network's success.
(6) Low-grade telephone lines in this state and lack of widespread understanding of microcomputer capabilities are the two major obstacles to be overcome before GaIN can reach its full potential.
(7) Forty percent of GaIN physician members practice in rural areas; most specialties are represented in the network but almost half the physicians are in primary care. More than half of the institutional members are located in rural areas.
(8) There is a trend toward more frequent use by MUSM medical students of computers for information retrieval and information management.
(9) GaIN has increased the number of services its hospital library members can

GaIN COST-EFFECTIVENESS ANALYSIS

GaIN Service	Equivalent Service	Equivalent Price for unit/service	Avg. GaIN Cost per unit/service
1. Electronic Mail	National E-Mail Service	6.75	5.49
2. Continuing Ed. Announcement	1 Issue JAMA	4.33	5.49
3. Consultant	--	10.00	5.49
4. Gateway	Avg. cost in rural Georgia to access Telnet node	21.00	5.49
5. Online Library Catalog	National online encyclopedia	6.75	5.49
6. List Search	Overnight mail	12.00	5.49
7. Interlibrary Loan	Docline and ILL fees	6.00	6.74*
8. Computer Literature Search	Resource Library Medline search	25.00	5.49
	TOTALS:	$91.83	$45.17
	C/E RATIO:	2 :	1

* Includes average GaIN cost per unit of service plus an average $1.25 interlibrary loan fee. The interlibrary loan price is $5.00/loan but is only charged for 25% of loans provided in the GaIN network; therefore the average cost per loan is $1.25.

offer and it has enabled these libraries to extend their services beyond the walls of their libraries.

(10) GaIN has raised expectations for computer services among Georgia physicians, with many perceiving GaIN to be very important in their medical practice by 1990.

(11) GaIN has developed a cost-effective model for the delivery of information to outlying areas.

Overall, the GaIN project has been successful both as a prototype medical information network and as a support network for the Georgia health care system. A major contribution of the project is development of heightened awareness and interest in computers among Georgia physicians. In establishing the foundations and implementing the linkages for an information service at the patient care site, GaIN has been instrumental in the development of a cohort of health professionals who are working together with the recently formed Medical Association of Georgia Computer Committee to devise new applications for computer technology in medical practices. problems. As more physicians join GaIN and attend GaIN-sponsored educational seminars, a GaIN users' group is evolving that helps members learn how to use the GaIN and other computer systems. A number of physicans have purchased equipment and/or implemented office practice management systems via this support group.

GaIN has accomplished much toward its aim of reaching rural and isolated areas of Georgia. GaIN has benefited physicians who practice in small isolated towns by providing them with an information and communications system. Also, geographically isolated GaIN hospitals which are too small to provide adequate information services to their staffs have benefited from the GaIN link into sophisticated, timely information services. GaIN has also provided these hospitals with access to a statewide system of hospital libraries. Physician and hospital interest in GaIN continue to grow as evidenced by the fact that the membership estimates for Years 01-03 have been exceeded by 350 percent.

Locally, a communications and information support network has been created in GaIN for MUSM clinical faculty, staff and students. Students routinely come by the Library for GaIN refresher courses before going to remote Community Science and Community Office Practice Plan sites. The network will become more valuable in the coming years as MUSM graduates begin their medical practices in rural Georgia communities. Mercer University and the members of GaIN have shown their confidence in the long-term value of the network by agreeing to support the cost of GaIN during the post-award period.

IV. PROJECT CONTINUATION

The GaIN network is an important project for the School of Medicine. GaIN has given MUSM visibility throughout the State of Georgia. The network provides evidence to Georgians of MUSM's mission and its commitment to improve the delivery of health care in the rural and underserved areas of the State. GaIN has also been a valued benefit in the MUSM faculty recruitment package, particularly among preceptors and other geographically remote faculty. GaIN is important in the educational process: students often use the system in direct support of totorial learning and as the link between the School and remote clinical sites. As a direct result of the GaIN project, MUSM is moving rapidly into the Computer Age. The library system serves as the core of an information system that is beginning to evolve within the School. Finally, the project has brought MUSM some national recognition among medical educators and librarians.

The inherent worth of the GaIN network to the School of Medicine was recognized at the April, 1986 meeting of the MUSM Executive Committee. A motion in support of GaIN was passed and a resolution from the faculty submitted to the Dean of the School of Medicine requesting MUSM funding of GaIN after the completion of the grant.

University financial support of the GaIN project has been a part of the program since its inception. Fifty percent of the Computer Operations Manager salary and fringe benefits for both this position and the GaIN Program Assistant have been supported by Mercer University. In addition, construction of the computer room has been a major contribution to the project by the University. Other supply category expenditures have been matched by the University as specified in the grant proposal. In-kind support by the University has included staff, space and services.

GaIN now operates with funding from MUSM and from member fees. The annual operating budget of GaIN is approximately $150,000. The costs of the library system consume about sixty-five percent of this budget while support of the network requires the remaining thirty-five percent. During 1986/87, almost fifty percent of the network direct costs will be recovered through member fees. Hospital members have been grouped into fee categories according to their institutions' bed capacity, occupancy rates and annual expenditures. Annual fees range from $600 to $1,500. Physician fees are currently $100 per year.

If the membership base continues to grow at the current rate, it is reasonable to expect full network cost recovery within 3 to 5 years. Other sources for funding are being explored in addition to network member fees, among them corporate and non-profit resources.

In addition to exploring options for funding, steps have been taken to move the network from an experimental mode to a stable basis. These steps included: refining the governance structure (including approval of by-laws); packaging policies; augmenting training and support services; initiating a marketing plan that identifies strengths and weaknesses, products needed for existing users, and strategies to reach potential members.

VALUE OF PROJECT TO OTHERS

GaIN was proposed and implemented as a model information system. It is currently serving as a prototype for evolving statewide medical information networks in Mississippi and West Virginia and for the Sisters of St. Mary Health Care System library information network. It has also been strongly influential in the design of HUGIN*, the information network at the University of Linkoping, Sweden, SHIN, the South Carolina Health Information Network, the South Dakota Medical Information Network, and the evolving technologically-based outreach plan in eastern Tennessee. As part of a study for their own system design, the Veterans Administration hospital library automation committee are also currently reviewing the GaIN system by dial-in connection.

Much of the design of GaIN is in response to recommendations in the Matheson-Cooper Report. Unique features of the GaIN information system are:

(1) the direct connection into the patient care setting;
(2) the network structure which has as its center a resource library but that incorporates hospitals in information transfer and builds on local consortia strengths;
(3) the network base of a fully automated medical library using an integrated library system;

*HUGIN: Ett forslag till stod for informationsforsorjningen vid halsouniversitetet, Linkopings Universitetsbebliotek Publikation #45, Linkoping, 1986, (p. 7).

(4) the focus on end-user (rather than librarian) searching;
(5) the provision of library databases in combination with communications and non-traditional information and educational resources;
(6) the use of new technology to package and deliver information services efficiently and rapidly;
(7) the connection through an information system of remote educational sites with the main campus;
(8) the combination of local databases with "gateway" linkages to regional and national resources;
(9) the provision of services to a broad base of health professionals regardless of institutional affiliation.

Other libraries can benefit from establishing a network similar to GaIN primarily because such a network enables implementation of many of the recommendations in the Matheson-Cooper Report. Other benefits include: providing librarians with the opportunity to acquire expertise with computer systems and technology; promoting interaction between information managers (librarians) and information consumers (health professionals); stimulating new and broader definitions of medical information management; bringing the library outreach capabilities, new roles and greater prominence within participating institutions; and fostering cooperation among individuals and institutions.

VI. PROJECT BIBLIOGRAPHY

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Woods, E. "GaIN: Georgia Interactive Network for Medical Information." Georgia Library Association, Annual Meeting, Augusta, GA, October 26, 1985.

Rankin, J.A. "GaIN." Invited Paper. Georgia Health Sciences Library Association, Annual Meeting, Unicoi, GA, April 17, 1986.

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C. Poster Sessions

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GaIN to Sponsor Computer Seminar at Mercer. Macon Telegraph and News. May 13, 1984.

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Briley, B. GaIN. WMAZ television news report. May 8, 1986.

GaIN Links Physicians, Hospitals, Medical Libraries Across State. The Mercer School of Medicine Newsletter. Summer, 1986, p. 5.

GaIN CALENDAR

(September 1983 - August 1986)

Milestones, Meetings, Exhibits, Demonstrations, Training

SEPTEMBER 1983

1 GaIN Grant Award begins
Medical student questionnaire

1 GaIN staff planning meeting, MUSM, Macon, GA

28 Referral Advisory Committee meeting, MUSM, Macon, GA

OCTOBER 1983

1 Computer Operations Manager position filled

3- 5 Library staff training in BACS, St. Louis, MO

13 GaIN Program Assistant position filled

13 Paper, MUSM Faculty Development SORT Program, MUSM, Macon, GA

23-26 SCAMCI Annual Meeting, Baltimore, MD

24 Referral Advisory Committee meeting, Macon, GA

NOVEMBER 1983

9 Site Visit to Central State Hospital, Milledgeville, GA

10 GaIN Presentation, HSLCG Consortium meeting, Macon, GA

14-16 Philsom Annual Meeting, St. Louis, MO

14-18 Retrocataloging data from Medical Center of Central Georgia, Macon, GA

15 BACS contract finalized

28-29 Site Visit to Medical Center, Columbus, GA

DECEMBER 1983

19 GaIN equipment order placed

JANUARY 1984

12 Preliminary delivery of PDP 11/44 (incomplete model)
Hospital statistical study

18 Presentation, West Georgia Medical Center, LaGrange, GA

23 Presentation, Roosevelt-Warm Springs Institute for Rehabilitation, Warm Springs, GA

30 Consultant on microcomputers (R.D. Williams), MUSM, Macon, GA

FEBRUARY 1984

Hospital statistical study

MARCH 1984

10 Renovation of computer space completed

15 GaIN Presentation, HSLCG Consortium meeting, Columbus, GA

29 Delivery of IBM PC's to first 3 GaIN hospitals

29-30 Training, Volkswriter, for GaIN librarians, MUSM, Macon, GA

APRIL 1984

6- 7 Training, Introduction to Lotus 1-2-3, for GaIN librarians, MUSM, Macon, GA

12 Paper (Rankin/Williams), Georgia Health Sciences Library Association meeting, Savannah, GA

MAY 1984

3 Training, Crosstalk, for GaIN librarians, MUSM, Macon, GA

17 GaIN Advisory Board meeting, MUSM, Macon, GA

17 GaIN Seminar on Introduction to the Use of Computers in Medical Office Management, MUSM, Macon, GA

25 PDP 11/44 disk drives delivered

29 Philsom Update, Denver, CO

30 Poster Session, Medical Library Association, Denver, CO

31 Computer Show, Atlanta, GA
OCLC test tape format accepted by WUSM - alpha testing completed

JUNE 1984

8 Hardware & Operating System testing completed

12 Site Visit, Roosevelt-Warm Springs Institute for Rehabilitation, Warm Springs, GA

18 Site Visit, Sumter Regional Hospital, Americus, GA

20 Exhibit, Bio' 84 Synthesis, Joint Conference of HeSCA, Biological Photographers Assn, Assn of Medical Illustrators, & Assn of Biomedical Communications Directors, Atlanta, GA

JULY 1984

12 Presentation, Education & Library Committee, Glynn-Brusnwick Memorial Hospital, Brunswick, GA

19 Presentation, HSLCG Consortium, MedCen North, Macon, GA

AUGUST 1984

2 Presentation, Networking Section, GHSLA Telnet Course on Basic Library Skills

21 Presentation, Library Committee, Floyd Medical Center, Rome, GA

SEPTEMBER 1984

14 SEARMLS Interlibrary Loan Workshop, Sponsored by GHSLA, Macon, GA, attended by GaIN librarians

24-26 On-site BACS modifications, Dr. Simon Igielnik, MUSM, Macon, GA

25-27 BACS training for library staff, MUSM, Macon, GA

26 System sign off

OCTOBER 1984

4 Online catalog up for patrons

10-12 Exhibit at Southern Chapter, Medical Library Association, Key Biscayne, FL

18 GaIN Open House, MUSM, Macon, GA

28-30 Exhibit, AAMC Annual Meeting, Chicago, IL

31 Training, Medical Center, Columbus, GA

NOVEMBER 1984

2 Training, Central State Hospital, Milledgeville, GA

4- 7 Symposium on Computer Applications in Medical Care, Baltimore, MD

5- 7 Philsom training, MUSM, Macon, GA

7 Librarian and physician training (Headley, Spence), Central State Hospital, Milledgeville, GA

12-13 GaIN physician (Hunt) training, MUSM, Macon, GA

13 GaIN Advisory Committee Meeting, MUSM, Macon, GA

15 HSLCG Consortium meeting, GaIN presentation and MEDLINE demo, West Central Georgia Regional Hospital, Columbus, GA

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NOVEMBER 1984 (continued)

27 GaIN physicians training (Chism, Otts), Dublin, GA

28 MCCG, hospital librarian training (Herin), Macon, GA

DECEMBER 1984

5 GaIN Referral Committee Meeting, MUSM, Macon, GA

13 Presentation, Floyd Medical Center representative (Smith), MUSM, Macon, GA

14 Presentation & Demo, Mercer Council of Librarians, Atlanta, GA

JANUARY 1985

9 Physician training (Dodgen), Thomaston, GA

12 Presentation by Headley, Medical Association of Georgia Board of Directors

22 Demonstration & training, Sumter Regional Hospital, Americus, GA; meeting with physicians & demo to office personnel

23 Physician training (Dudley), Americus, GA

28 Training, Roosevelt-Warm Springs Institute for Rehabilitation, Warm Springs, GA

29 GaIN Task Force, MUSM, Macon, GA

31 Demo, representatives attending SOLINET/OCLC Users Group Meeting, MUSM, Macon, GA

FEBRUARY 1985

5 GaIN demonstration for MUSM students

6 GaIN planning with community physicians

7 Librarian training (Americus), MUSM, Macon, GA

14 Update, HSLCG Consortium meeting, Milledgeville, GA

16 Planning meeting

19 GaIN training session for MUSM faculty and staff (15)

20 Presentation & demo to MU College of Liberal Arts Library Building Committee, MUSM, Macon, GA

21 Planning meeting with MU School of Pharmacy (Ward)

25 Training (Cramer, Smith), MUSM, Macon, GA

MARCH 1985

5 Presentation, MUSM Committee on Library & Learning Resources

6 Presentation & demo, National Library of Medicine, Washington, DC

7- 8 AAMC Symposium on Medical Information, Washington, DC

12 Physician training (Barnes), Macon, GA

18 Training, Warm Springs, GA

21-22 Hospital librarian training & demo to physicians, Brunswick, GA

28-29 Hospital librarian training & demo to physicians, Rome, GA

30-31 Demo & Exhibit, American College of Surgeons, MUSM, Macon, GA

APRIL 1985

10-12 Demo & Exhibit, Southeastern Hospital Conference, Atlanta, GA

12 Paper (Spence), Southeastern Hospital Conference, Atlanta, GA

12 Physician training (Hoffman), Warm Springs, GA

16-20 Demo & Exhibit, Health Sciences Conference, OCLC Users Group, Birmingham, AL

24 MAG Computer Committee meeting, Savannah, GA

25 Presentation, Education/Library Committee, Glynn-Brunswick Hospital, Brunswick, GA

24-26 Demo & paper (McInnis), GA/FL Joint Health Science Library Association, Jekyll Island, GA

25-26 Demo & Exhibit, Medical Association of Georgia, House of Delegates, Savannah, GA

MAY 1985

2 Veterans Administration software mounted in test mode

4- 5 Demo & Exhibit, MUSM Family Medicine & Community Health Preceptors Workshop, Jekyll Island, GA

9-10 Presentation (Rankin), Symposium on Biomedical Information, Auburn University, Montgomery, AL

16-18 Exhibit & Demo, Joint GA Public Health & GA Primary Health Care, Jekyll Island, GA

MAY 1985 (continued)

21-22 Southeast GA Planning Conference, Jekyll Island, GA

27 Paper (Williams), Medical Library Association Annual Meeting, NYC, NY

28 Physician training (Bell), Rome, GA

29 Philsom Update, Medical Library Association Annual Meeting, NYC, NY

JUNE 1985

1 Demo at MUSM Open House

7 Demo & Presentation, Colquitt Regional Medical Center, Moultrie, GA

10 GaIN Hospital Librarians Meeting, MUSM, Macon, GA

11 Training for new hospital librarian (Gomez), Medical Center of Central GA, Macon, GA

10-14 MUMPS Users Group Meeting, Chicago, IL

20 Demo & Presentation, Candler General Hospital (Savannah), MUSM, Macon, GA

25 Follow-up training at MCCG, Macon, GA

JULY 1985

18 Demo, HSLCG Consortium meeting, Warm Springs, GA

18 Presentation & Demo, Atlanta Health Sciences Library Consortium meeting, Atlanta, GA

AUGUST 1985

11 Physician training (Greenwald), MUSM, Macon, GA

15 MUSM library card catalog removed

22 GaIN Librarians Subcommittee, MUSM, Macon, GA

26-27 On-site consultation, Dr. David Mishelevich, MUSM, Macon, GA

28 Survival Skills Workshop on GaIN for medical students, MUSM, Macon, GA

29 Survival Skills Workshop on GaIN for medical students, MUSM, Macon, GA

SEPTEMBER 1985

1 Began GaIN group subscription to BRS/Colleague

4 GaIN PR planning meeting with consultant, MUSM, Macon, GA

6 GaIN-On-Site planning meeting with consultants, MUSM, Macon, GA

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SEPTEMBER 1985 (continued)

6 Site Visit, Roosevelt-Warm Springs Institute for Rehabilitation, Warm Springs, GA
7 Presentation, Sumter Regional Hospital, Americus, GA
8 GaIN Librarians Medline Subset Journal Selection meeting, MUSM, Macon, GA
24 GaIN Seminar on Medline Training for the Health Professional, MUSM, Macon, GA
26 Medis Demonstration, MUSM, Macon, GA
27 Training, Phoebe Putney Memorial Hospital, Albany, GA
27 Presentation & Demo, Payne College students, MUSM, Macon, GA

OCTOBER 1985

1 Follow-up training, Glynn-Brunswick Memorial Hospital, Brunswick, GA
1 Installation, Candler General Hospital, Savannah, GA
24 BRS Colleague Demo for GaIN, MUSM, Macon, GA
25 Paper (Woods), Georgia Association of Instructional Technology, Augusta, GA
26 Paper (Woods), Georgia Library Association, Augusta, GA
28 Training & installation, West Central Georgia Regional Hospital, Columbus, GA
27-29 Poster Session, Association of American Medical Colleges, Washington, DC
31 GaIN-On-Site proposal submitted to NLM (disapproved 5/86)

NOVEMBER 1985

1 Veterans Administration Electronic Mail test mode
5 Installation & training, Phoebe Putney Memorial Hospital, Albany, GA
10-12 Delegation from University of Linkoping, Sweden to see GaIN
15 Poster Session, Joint Mid-Atlantic & Southern Chapter meeting, Medical Library Association, Winston-Salem, NC
20-22 Poster Session, Georgia Hospital Association Annual Meeting, Atlanta, GA

DECEMBER 1985

4 Telecommunications consultant (R.D. Williams), MUSM, Macon, GA
5 Demonstration & Presentation, Coffee Regional Hospital, Douglas, GA and Dominy Hospital, Fitzgerald, GA
5 Training, Candler General Hospital, Savannah, GA
6 Installation & training, Memorial Hospital, Savannah, GA
9 Follow-up training, Floyd Medical Center, Rome, GA

JANUARY 1986

15 GaIN Site Visit, Rome, GA
27 Demonstration & Presentation, Coffee Regional Hospital, Douglas, GA
28-30 Delegation from Sisters of St. Mary Health Care System, St. Louis, MO to see GaIN

FEBRUARY 1986

1 VA E-Mail made available to network
7 Drug database demo, MU School of Pharmacy, Atlanta, GA

MARCH 1986

13 Demonstration & Presentation, Memorial Hospital of Washington County, Sandersville, GA
14 GaIN Librarians Meeting, MUSM, Macon, GA
14 Electronic Mail Tutorial for GaIN Librarians, MUSM, Macon, GA
15 Presentation & Demonstration, MAG Computer Committee, Milledgeville, GA
18 Installation & training, Coffee Regional Hospital, Douglas, GA
25 Installation & training, St. Joseph's Hospital, Savannah, GA
26 Follow-up training, Memorial Medical Center & Candler General Hospital, Savannah, GA

APRIL 1986

2- 4 Poster Session, Southeastern Hospital Conference, Atlanta, GA
3 Installation & training, Memorial Hospital of Washington County, Sandersville, GA

APRIL 1986 (continued)

9 On-site BACS system modifications, Dr. Simon Igielnik, MUSM, Macon, GA
10 GaIN Medline training for MUSM library staff by B. Kelly, MUSM, Macon, GA
17 Paper (Rankin), Georgia Health Sciences Library Association meeting, Unicoi, GA
18 Physician training (Rawlings), MUSM, Macon, GA

MAY 1986

2 Site Visit (Headley), Milledgeville, GA
8 GaIN Seminar on New Developments in Medical Computing, MUSM, Macon, GA
8 GaIN Seminar on Introduction to the IBM PC, MUSM, Macon, GA
8- 9 On-site consultation, Dr. David Mishelevich
9 GaIN Medline Training for GaIN librarians, MUSM, Macon, GA
19 Presentation (Williams), Audiovisual Section, Medical Library Association, Minneapolis, MN
20 Philsom Update, Minneapolis, MN
20-22 Poster Session, Medical Library Association, Minneapolis, MN
22 Paper (Rankin), Medical Library Association, Minneapolis, MN
GaIN Medline Training for MUSM students

JUNE 1986

10 Training Session, HCOP students, MUSM, Macon, GA
17 Training Session, HCOP students, MUSM, Macon, GA
24 Training Session, HCOP students, MUSM, Macon, GA
28 GaIN training for MAG Computer Committee, MUSM, Macon, GA

JULY 1986

7 Training, Bradley Center, Columbus, GA
15 Training Session, HCOP students, MUSM, Macon, GA

AUGUST 1986

15 Student Orientation, MUSM, Macon, GA
26 Training, Freshman medical students, MUSM, Macon, GA
31 GaIN Grant Award ends

Georgia Interactive Network

NEWSLETTER

Volume 1 Number 1 Fall 1983

GaIN: A COMPUTER PROJECT IS FUNDED

The Mercer University School of Medicine Library submitted a grant proposal entitled "GaIN" to the National Library of Medicine. This project is an answer to a challenge by the American Association of Medical Colleges to academic health science libraries to assume a central role in the management of computerized biomedical information and the development of computer networks. GaIN (Georgia Interactive Network for Medical Information) is a many faceted project which involves participants on three levels: the physician's office, the hospital library, and the medical school library.

The purpose of GaIN is to transmit medical information via computer directly to the person who needs the information. Physicians will be able, through the microcomputers in their offices, to send messages to hospital libraries, other physicians in the network, and MUSM. Also, they will "dial-in" to the Mercer Medical Library's computer to search the library catalog, a file for consultants, a continuing education file, and order "searches" of the literature. If they wish, they can also access other computers outside of GaIN. The hospital libraries and the Mercer Medical Library will provide interlibrary loan and search services as requested by the physicians.

On July 28, 1983 the Library received word that the GaIN proposal had been funded, and the program was to begin September 1, 1983. Since then the Library has been recruiting for positions funded by the grant, selecting hardware, planning GaIN Committee meetings and GaIN educational seminars. The Library staff is looking forward to a busy and productive three years as GaIN continues to become a reality.

Computer Manager Accepts Position

Mercer University School of Medicine is pleased to announce the appointment of Mr. Paul Schmid as Computer Operations Manager. In this position, Mr. Schmid will manage the computer aspects of the GaIN project.

Mr. Schmid comes to Mercer well qualified. He has recently coordinated two Digital Equipment installations in Baltimore, MD. Mr. Schmid is a graduate of St. Mary's College, Winona, Minnesota where he received a B.A. degree in Business Education. He did graduate work at Cleveland State University, Cleveland, Ohio.

GaIN

Georgia Interactive Network

NEWSLETTER

Volume 2 Number 1 Winter 1984

MILLEDGEVILLE DOCTOR COMPARES COMPUTER TO PIANO

Dr. William M. Headley, Milledgeville, Georgia, has had his IBM P.C. for 15 months. The computer has a modem that will connect him through the telephone to the National Library of Medicine (NLM) and eventually Mercer Medical Library. He uses the LOTUS 1, 2, 3 Software package which contains Wordstar Wordprocessing, a financial spreadsheet, graphic capabilities and an on-line database.

At first, Dr. Headley said, he was very worried about using his computer because he was afraid that he might misuse it. However, after reading and re- searching about its operation, he was easily able to learn how to operate it and eventually write programs for his own medical practice. Dr. Headley uses his computer mainly for patient information purposes. He is very interested in being able to analyze the results of his specialty, gastric bypass surgeries. By using his computer, he can find out the percentage of patients who have had successful surgeries, their age ranges, their cholesterol levels, etc. Dr. Headley says because of these capabilities he was able to coordinate a reunion of his patients and compare his results with them. His computer will also enable him to send out a mass mailing to these former patients and record those attending the reunion. He also intends to use his computer to send out letters to people according to their zip codes in order to announce seminars he will be giving in their areas.

Last September, Dr. Headley took a 3-day Medline Training course taught by NLM. With this new knowledge he is able to search the Medline database for journals and articles containing information on specialized medical topics. Through the GaIN Library, Dr. Headley will now be able to borrow materials he would not otherwise have access to in his rural practice site.

Dr. Headley says that he has become very enthused about and even addicted to his computer and now compares it with learning how to play a piano. He says that it just takes a lot of practice and that learning a new program is like learning a new song on the piano.

GaIN Program Assistant Joins Staff

Mercer University School of Medicine is pleased to announce the appointment of Mrs. Jill Crawford as the GaIN Program Assistant. In this position, Jill will be responsible for helping to implement various aspects of the GaIN program (i.e., training sessions, inputting catalog data from GaIN sites, the GaIN newsletter, statistical reports, etc.).

Jill is a recent graduate of Florida State University, Tallahassee, Florida, where she received a B.A. degree in Government and International Affairs and was nominated for Who's Who Among Students in American Colleges and Universities. She did her internship in the Cabinet Affairs Office of Governor Bob Graham of Florida and was employed by IBM of Macon before coming to Mercer.

for Medical Information

MERCER UNIVERSITY SCHOOL of MEDICINE

Georgia Interactive Network

NEWSLETTER

Volume 2 Number 2 Spring 1984

GaIN SPONSORS COMPUTER SEMINAR

There are eight basic steps in selecting a computer for medical office management, states Benjamin F. Banahan, III, Ph.D. The first step, he emphasizes, is to educate the physician and office manager. It is to this point that Dr. Banahan, a faculty member at the School of Primary Medical Care, University of Alabama in Huntsville, speaks in his "Introduction to the Use of Computers in Medical Office Management" seminar. GaIN will be sponsoring the seminar for area health care practitioners and administrators who are interested in medical office computerization on May 17 at the Mercer University School of Medicine. Dr. Banahan will be the featured speaker for this one-day workshop.

Dr. Banahan received his B.S. degree in Psychology from Louisiana State University and his M.S. and Ph.D. degrees in Health Care Administration from the University of Mississippi. He is currently an Assistant Professor in the Department of Community Medicine at the University of Alabama, Huntsville and a Clinical Professor in the Department of Preventive Medicine at the University of Alabama, Birmingham. Besides his various memberships and offices in Rural Health Associations, Dr. Banahan is also a consultant for the use of computers in medical practices at the HYTEK Computer Learning Center in Huntsville, Alabama. Dr. Banahan has presented his seminar for such groups as the National Conference on Rural Primary Care in Albuquerque, New Mexico and for the Society of Teachers of Family Medicine Annual Spring Conference in Orlando, Florida.

Dr. Banahan will present his seminar in three parts. The first topic is "Computer Systems: Hardware, Software and Terminology." This is an overview of the components of a computer system and how they work. The second topic is "Overview of Medical Office Computer Systems." Dr. Banahan will talk about the various applications that will computerize billing and medical records, generate reports and do various other medical management tasks. The third topic is "Steps in Selecting a Computer System For Your Office." During this session he will elaborate on eight steps to computerizing a medical practice and show how to develop criteria for selection of a computer system.

Following the luncheon, seminar participants will have the opportunity to talk with several local computer vendors and see demonstrations on hardware and various medical software packages. Is it time for you to make the first step?

Registration for the seminar is $50.00 a person, which includes the seminar, luncheon and workbook. To register, send $50.00 to Mercer Medical Library, c/o Jean Williams, Mercer University School of Medicine, Macon, Georgia 31207 by May 10.

GaIN Hospital Sites Receive Computers

The GaIN hospital libraries received their IBM Personal Computers on March 29. The librarians will use their machines to computerize their local library operations and as a terminal to link into the GaIN network. The configuration for the IBM system includes the system's central processing unit and keyboard with

(See RECEIVE COMPUTERS on page 3)

Georgia Interactive Network

NEWSLETTER

Volume 4 Number 4 Fall 1984

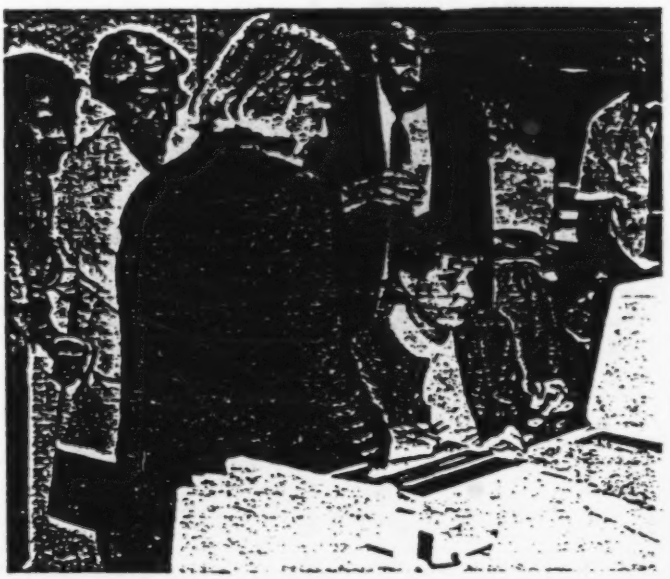
GaIN BECOMES OPERATIONAL

The GaIN system became fully operational on October 10, 1984. An open house was held at Mercer University School of Medicine Library on October 18, 1984 to demonstrate the system to the faculty, staff and students of MUSM.

Participants in the GaIN project are using a variety of information services available through GaIN: an online catalog, IPM (Information for Patient Management) file, CE file, and consultants' file, and remote database searching.

The GaIN Online Catalog is a bibliographic file of all library holdings (books, audiovisuals, monographic serials, microfiche, journal titles) in the MUSM Library and participating GaIN hospital libraries. The initial database was created from OCLC (Online Computer Library Center) archive tapes, machine readable tapes containing records of the library's bibliographic holdings. The tapes were mounted on the GaIN computer and run through various programs that created "user-friendly" records for the GaIN Online Catalog.

A variety of search keys are used to access bibliographic data for books, audiovisuals, monographic serials and journal titles. Users of the system are able to perform keyword and exact searches on the data in the online catalog. When a user dials into the online catalog, a menu appears which offers four search choices and instructions for using the system. The instructions for using the system give an introduction to the online catalog and the search choices available.



Jean Williams, Assistant Director, MUSM Library, instructs user at GAIN Open House

The user who performs a keyword search for books, monographic serials and audiovisuals can combine keywords from the author, title, subject (MESH only), series and date to perform a very specific search, or the user can choose to search by only one term in only one field for a very general search. If a search yields no "hits" with the terms as entered, the system will perform an approximation search. All trailing s's, double consonants, and vowels (not initial vowels) are dropped and the system searches fields for only those consonants left.

Georgia Interactive Network

NEWSLETTER

Volume 3 Number 1 March 1985

GaIN DEMONSTRATION AT NLM

by--Jocelyn Rankin

Did you all get the MX from "Physician" and wonder who was demonstrating GaIN at the National Library of Medicine? "Physician" was a dummy code used by GaIN staff for this demonstration in order to simulate physician interaction with the GaIN database.

The demonstration and a seminar were given at the Lister Hill Center in Washington, D.C. on March 6, 1985 in response to an invitation from the National Library of Medicine. NLM staffers attended and among those present were Dr. Donald Lindberg, Director of the National Library of Medicine, and Dr. Bill Cooper, Associate Director for Extramural Programs.

The seminar included a report on the project to date, a demonstration, and a stimulating dialog on the implications of the GaIN project as a model and research tool for computer-based delivery of information to the physician.

SYMPOSIUM ON MEDICAL INFORMATICS

by--Jean Williams

On March 7-8, 1985, the Association of American Medical Colleges in cooperation with the National Library of Medicine, sponsored a symposium on medical informatics in Washington, D.C. Participants were invited from the country's medical schools and included deans, department chairpersons and leaders in technology. The purpose of the symposium was to share information about Medical Education in the Information Age and to set an agenda for integrating technology into medical education. The report from the meeting will be published in the fall.

(SYMPOSIUM ON MEDICAL...) cont'd

The symposium had an impressive agenda with several distinguished speakers. Joshua Lederberg, Nobel prize winner, spoke of the role of computers as books, as instruments, and as teachers in medicine. He also gave a background on the development of "expert systems" and knowledge engineering. Daniel Tosteson, Dean of the Harvard Medical School spoke of the effects of technology on the growth of medical knowledge, and how technology will change the roles of physicians. Physicians of the future must concentrate on activities that humans can perform better than machines. Thomas Coleman continued the session with a talk on using computer simulation in basic science education. Donald Lindberg, the new Director of the National Library of Medicine, noted the NLM high priority initiatives in his speech on the evolution of medical informatics. These initiatives include: expert system development and testing, medical heuristics, the establishment of a unified medical language system, and basic research in medical information. Also, he advocated continued support of institutional development (IAIMS) projects, and the need to establish several "Centers of Excellence in Medical Informatics." (p.3)

March Winds?

Repairs are completed and no further difficulties should be experienced.

Georgia Interactive Network

NEWSLETTER

Volume 3 Number 2 JUNE 1985

MEDLINE WORKSHOP AT MUSM

by: Jean Williams

GaIN will sponsor a workshop for health professionals MEDLINE Searching for the Health Professional on September 24, 1985.

The workshop, which is limited to physicians and other health professionals, will teach the basics of MEDLINE searching. At the end of the day-long workshop, participants will receive a password and two hours of free connect time to the National Library of Medicine MEDLARS databases.

The course will be taught by Linda Garr Markwell, M.L.S. and Alice DeVierno, M.L.S. of Atlanta, Georgia. The course will be held in Rooms 2A and 2B at the Mercer University School of Medicine in Macon, Georgia. Registration begins at 8:15 A.M. The course runs from 9:00 A.M. to 5:00 P.M. The $75 registration fee includes all materials, refreshments and lunch. Registration is limited to 25 people. Preference will be given to GaIN network members. The registration deadline is September 16, 1985.

For questions about eligibility for the course and for more information, contact Jean Williams at (912) 744-2516.

You may pre-register by completing the enclosed registration form and returning it to the address indicated.

GaIN "RC" CE Listing

by: DAR

You may have noticed that, as of June 1, there were over 650 continuing medical education classes/conferences/meetings listed in the RC file on the GaIN network. What you may not have noticed is that some of these are for librarians (#598), some for hospital administrators (#451 and #502), some for hospital personnel directors (#558), some for nurses (#488), some for psychiatrists (#307, #439), some for those who

GaIN RC...(cont'd)

are interested in computers-in-medicine (#649, #599, #648, #650) and, of course, many for physicians on a vast array of subjects such as pediatrics, ob/gyn, cancer, surgery, gerontology, internal medicine, opthalmology, allergies, nutrition, cardiology, pulmonary diseases, and critical care.

We receive listings for the RC file directly from organizations and institutions at many levels. Some of the national medical organizations which provide us with listings are: the American Academy of Pediatrics, the American Academy of Clinical Psychiatrists, the American Medical Association, and the American College of Physicians. Some of the regional and state organizations which furnish us listings are: the Medical Association of Georgia, the Georgia Society of Anesthesiologists, the Georgia Nurses Association, the Georgia Chapter of Epilepsy Foundation of America, the Georgia Hospital Association and the Florida Hospital Association. Educational institutions which provide us with listings are: Emory University School of Medicine, Medical College of Georgia, Duke University Medical Center, and Georgia Southern. Individual hospitals which provide us with listings are: The Medical Center in Columbus and Sumter Regional Hospital in Americus.

The Goal for the GaIN RC file is to have as complete a listing as possible of continuing medical education classes/conferences/meetings which are held in the Southeast.

ONLINE CATALOG

by: Elaine Woods

The final OCLC archive tape was loaded and processing completed during the first week in June, making all MUSM Library and current

(p. 2)

GaIN

ONLINE

...with the GEORGIA INTERACTIVE NETWORK FOR MEDICAL INFORMATION.

MERCER UNIVERSITY SCHOOL OF MEDICINE □ MACON, GEORGIA □ VOL. III / No. 3 / DEC 85 / JAN 86

IN THIS ISSUE

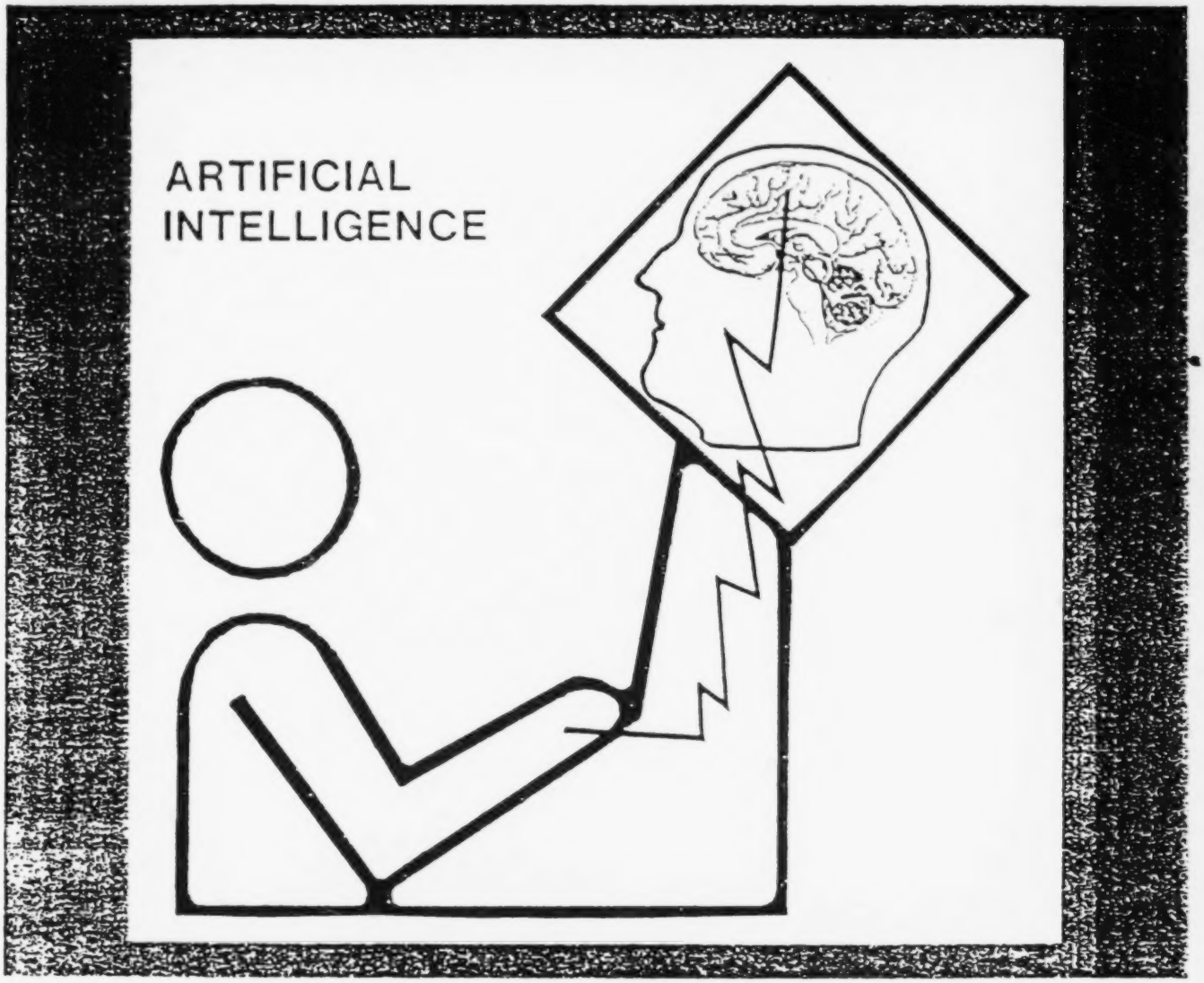
COVER STORY: Scandinavians Impressed with GaIN Network
Headley Chairs MAG Computer Committee
Zimmer Edits Issue of PRIMARY CARE
New GaIN Program Assistant
BRS/Saunders Colleague: Group Subscriptions, Demonstration
Medline Searching for the Health Professional
New GaIN Sites
Network Notes: Telecommunications Troubleshooting

GaIN

ONLINE

...with the GEORGIA INTERACTIVE NETWORK FOR MEDICAL INFORMATION.

MERCER UNIVERSITY SCHOOL OF MEDICINE ⊐ MACON, GEORGIA ⊐ VOL. IV / No. 1 / APRIL / MAY 86



IN THIS ISSUE:

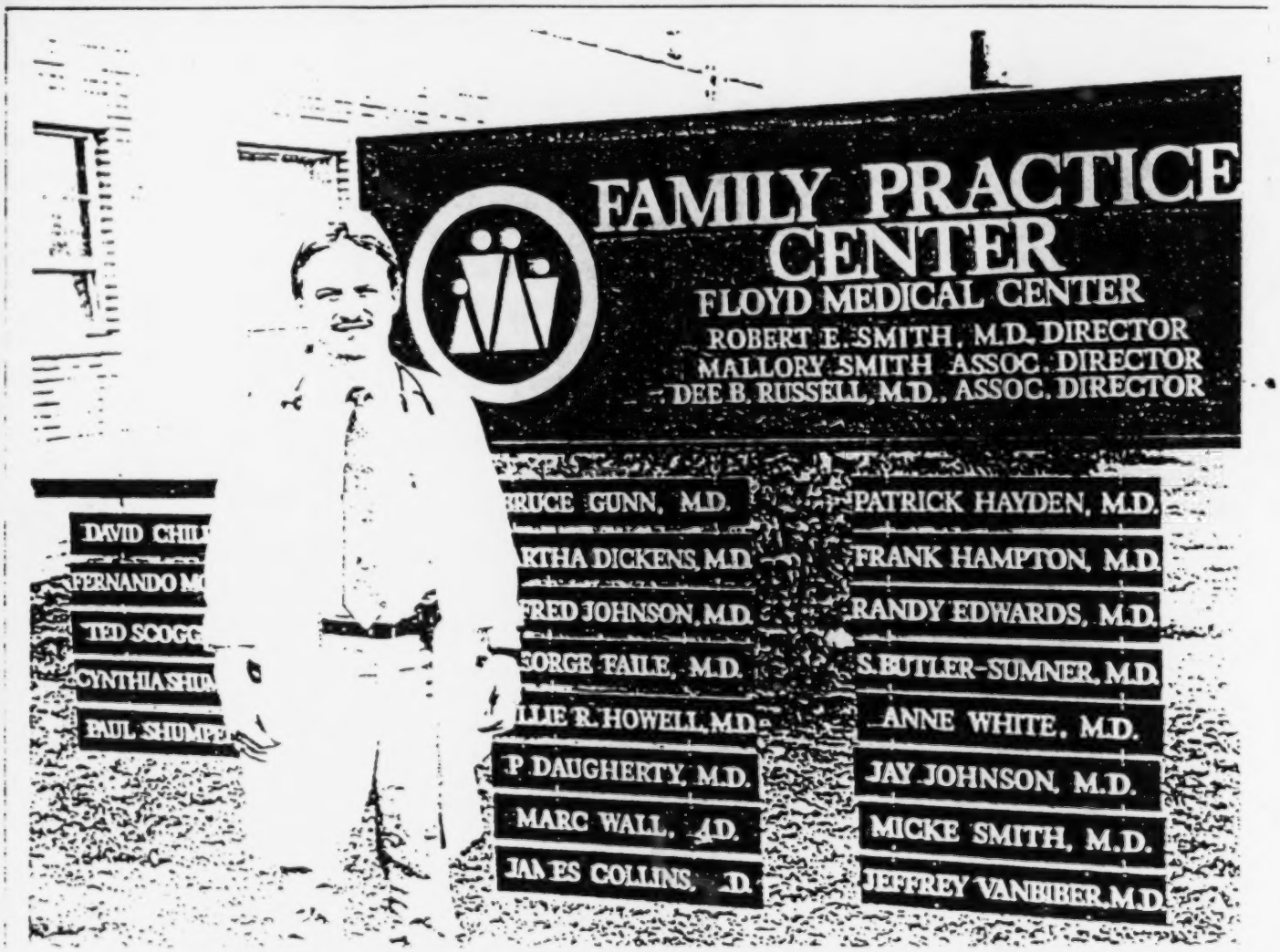
COVER STORY: GaIN and MAG present Computer Workshop
GaIN-Medline brings a User Friendly Version of Medline to Georgia
MAG Committee Report: Computers in Medicine
Bargain from VA adds Electronic Post Office
Memorial Hospital of Washington County joins GaIN Network
Book Corner: Essential Guide to the Library IBM-PC Series
Hospital Administrators Visit GaIN

GaIN

ONLINE

...with the GEORGIA INTERACTIVE NETWORK FOR MEDICAL INFORMATION.

MERCER UNIVERSITY SCHOOL OF MEDICINE ☐ MACON, GEORGIA ☐ VOL. IV / NO. 2 / FALL 1986



IN THIS ISSUE:

COVER STORY: MUSM Graduate Using GaIN in Residency
Lister Hill Center: A Glance Into Our Technological Future
Uploading and Downloading: What Are The Advantages?
GaIN Medline: An Update
Focus on: Savannah Memorial Medical Center
PC-FILE a Favorite at Warm Springs
Medline Helps to Identify Obscure Disease

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GEORGIA INTERACTIVE NETWORK FOR MEDICAL INFORMATION

Supported by
National Library of Medicine Grant NLM-EP (1 G08 LM 04105-01)

MERCER UNIVERSITY
SCHOOL OF MEDICINE

WHAT A Network of Physicians and Hospitals in Georgia.

HOW You Connect with GaIN.

WHY GaIN for Your Practice.

WHERE At Home or In Your Office.

GaIN

GEORGIA INTERACTIVE NETWORK FOR MEDICAL INFORMATION
Mercer University
School of Medicine
Medical Library
Macon, Georgia 31207

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GEORGIA INTERACTIVE NETWORK
GaIN
FOR MEDICAL INFORMATION

A COMPUTER-BASED DATA SYSTEM
CENTRALLY LOCATED AT
MERCER UNIVERSITY SCHOOL OF MEDICINE
MEDICAL LIBRARY
MACON, GEORGIA 31207

FOLDER ON GaIN FOR PHYSICIANS

FOUR INSERT SHEETS

PHYSICIAN
QUESTIONNAIRE
ON
COMPUTER USAGE
PRE-GaIN
GEORGIA INTERACTIVE NETWORK (GaIN)
FOR MEDICAL INFORMATION *

(* Supported by NLM Grant NLM-EP 1 G08 LM 04109-01)

Prepared by: Medical Library
Mercer University School of Medicin
1400 Coleman Avenue
Macon, GA 31207

1. How often have you used a computer during the last 2 years?

   Daily 26 Weekly 7 Monthly 1

   Less than once a month 5 Have never used 4

2. Do you own a computer? Yes 35 No 8
   If so, please list below the hardware and any software that you own: IBM-PC; Apple IIC; Alpha; HP+; Commodore 64; HP150

   Image writer; Lotus 1,2,3; FamMed; DCAT Base Manager; Evoked Potentials; Peachtex; Wordstar; PerfectCalc; d-Base

3. Have you ever attended a course, program or show on the use of computers in medical practice? Yes 16 No 25

   If so, please give the name of the course, program and/or course content and date(s) attended.

Course Name	Program/Contact	Date
GaIN Workshop	Mercer University	1984; 1985
Computers in Surgery	Albert Einstein CM	1984
What's Available?	Medical Assn. Georgia	1984
Medical Office Mgt.	Columbus College	1984
Computers in Medicine	Family Practice Conf.	1983

4. For what reason(s) do you use or plan to use a computer in your medical practice? (Rank in order of priority: 01 = highest; 08 = lowest)

   2 Access to GaIN Network

   1 Billing, collection and insurance

   4 Accounting

   3 Patient scheduling and follow-up

   6 Word processing

   5 Clinical decision making

   7 Database services such as AMA/NET, Medline, BRS Colleague, etc.

   8 Other reason (Please list) testing; patient data; academic research; communication with partners

5. Do you currently subscribe to or are you planning to subscribe to any of the following database services? (Check all that apply.)

3 The Source	7 BRS Colleague
6 AMA/NET	9 Others (Please list)
7 MEDLINE (NLM)	Compuserve, Genie, Phycom GaIN Medline, Dialog

6. Please rank in order the sources you use when you are looking for information (#1 = the source you use most; #5 = the source you use least.)

1 Books

2 Journals

3 Colleague or subject specialist

5 Audiovisual programs or other non-print media

4 Computer database service

6 Other (Please specify) literature searches; GaIN; professional meetings; libraries

7. When you need information sources, where or to whom do you go to in your community to locate them?

MUSM Library, MCG Library, computer databases, personal library, hospital library, clinical lectures, consultants, journals, books

8. How do you find out about pertinent continuing medical education opportunities?

GaIN, mailing lists, journals, word of mouth, professional organizations, state information service, colleagues, Phycom

9. How useful do you expect GaIN services to be to you and/or your patient?

	Very useful (use 5 or more times/month)	Possibly useful (use 2-4 times/ month)	Not useful (use once) month or les
a. GaIN Online Catalog of MUSM and GaIN Hospitals	12	18	5
b. GaIN Information for Patient Management	12	18	5
c. GaIN Continuing Medical Education Bulletin Board	9	16	10
d. GaIN Consultants/Referral file	7	13	15

10. What effect(s) do you think computers will have on the future of medicine?

Improvement in decision-making; essential for up-to-date information; better patient-care data retrieval; essential for CME; helpful in differential diagnosis; will maintain physician income at lower patient cost; necessary for business

11. What other programs, files, or databases would you like offered through GaIN?

Physician bulletin board; lab diagnosis; protocols and flow sheets; reporting of notifiable diseases to PHS; drug file; on-line conferencing; medical bulletins; additional abstracts

EVALUATION OF VOLKSWRITER TRAINING SESSION
March 29-30, 1984

	Strongly Agree 1	2	3	4	5 Strongly Disagree
I feel that the workshop enabled me to learn within my own level of comprehension	All respondents marked 2				
The presention was well prepared and presented.	One respondent marked 1 Two respondents marked 2				
	One respondent did not answer				
The handouts were helpful.	One respondent marked 1 One respondent marked 2				
There was adequate time for the presentation and questions.	One respondent marked 1 One respondent marked 2 One respondent marked 3				
I preferred being able to learn through the tutorials rather than person-to person instruction.	One respondent marked 2 One respondent marked 3 One respondent marked 5				

COMMENTS:

Do you have any suggestions for changes in future Volkswriter workshops? Comments were: Provide more opportunities to set-up/start-up computer with software; make material available for study before the training session; provide a checklist of essential do's and don't's

What would you like to see done in future software workshops? Comments were: Structure session to include a brief overview with questions and answers followed by hands-on computer practice with instructor available for questions.

Other Comments Comments were: Enjoyed the workshop; feel overwhelmed right now...

BEST COPY AVAILABLE

EVALUATION OF CROSSTALK TRAINING SESSION

	Strongly Agree : 2 3 4 5 Strongly Disagree
I feel the workshop enabled me to learn within my own level of comprehension	All respondents marked 1 1 2 3 4 5
The presentation was well prepared and presented	All respondents marked 1 1 2 3 4 5
The handouts were helpful	All respondents marked 1 1 2 3 4 5
There was adequate time for the presentation and questions	All respondents marked 1 1 2 3 4 5
The demonstrations were helpful	All respondents marked 1 1 2 3 4 5

COMMENTS: How can we improve this workshop in the future?

OTHER COMMENTS: Comments were: Excellent - both material and presentation; questions answered as asked or as an item came with demonstration; This was a very good workshop - the teachers were relaxed and thorough; Enjoyed this workshop very much; look forward to working with the computer in the library.

BEST COPY AVAILABLE

GaIN

Georgia Interactive Network

April 6 or 7, 1984

EVALUATION OF INTRODUCTION TO LOTUS 1-2-3
AT CENTRAL GEORGIA COMPUTER SHOW

	Strongly Agree 1	2	3	4	5 Strongly Disagree
I feel that the workshop enabled me to learn the material	All respondents marked 4				
	One respondent marked 1				
	One respondent marked 2				
The presention was well prepared and presented.	One respondent marked 3				
	One respondent marked 3				
	One respondent marked 5				
The handouts were helpful.	One respondent didn't answer				
There was adequate time for the presentation and questions.	All respondents marked 2				
I feel that this was only an introduction and that I need further training on Lotus.	All respondents marked 1				

COMMENTS:

Do you have any suggestions for future Lotus 1-2-3 workshops?
Comments were: Hands-on training would be helpful.

What would you like to see done in future software workshops?
Comments were: Hands-on application of software.

Other Comments Comments were: At the session attended by one librarian the instructor for Lotus 1-2-3 was unable to attend. The presentation was by a salesperson showing a videotape-it was good background but lacked training aspects in use of computer and software.

GaIN Librarians
5 responses

March 14, 1986

WORKSHOP EVALUATION FOR
AN INTRODUCTION TO GaIN ELECTRONIC MAIL

1. As a result of this workshop do you understand:

	YES	SOMEWHAT/ OR NOT SURE	NO
a. how to log into electronic mail?	5 (100%)		
b. how to send a message?	5 (100%)		
c. how to edit a message?	5 (100%)		
d. how to read a message?	5 (100%)		
e. how to reply to a message?	5 (100%)		
f. how to forward a message?	3 (60%)	2 (40%)	
g. how to log off electronic mail?	5 (100%)		

	VERY USEFUL	SOMEWHAT USEFUL	NOT USEFUL
2. How useful was the course to you?	5 (100%)		
3. Please rate the instruction manual and the "hands on" experience.	5 (100%)		

4. What would you add or change to improve any part of this workshop? (Please comment.) (1) wouldn't change anything;

(1) more hands on experience

5. How well did the instructor communicate ideas?

(Please comment.) (4) very well

6. What did you like best about this workshop?

(4) hands on training and experience

7. What did you like least about this workshop?

having to share a terminal; (2) nothing

8. Any general comments more exercises for enforcing learning

THANK YOU

GaIN Librarians
10 responses

May 9, 1986

WORKSHOP EVALUATION FOR
AN INTRODUCTION TO GaIN MEDLINE

1. As a result of this workshop do you understand?

	YES	SOMEWHAT/ OR NOT SURE	NO
a. how to use MeSH?	10 (100%)		
b. how to log into GaIN MEDLINE?	8 (80%)	1 (10%)	1 NR (10%)
c. how to search GaIN MEDLINE?	10 (100%)		
d. how to store a search for future use?	10 (100%)		
e. how to run a stored search?	10 (100%)		
f. how to store a group of searches?	9 (90%)	1 (10%)	
g. how to run a group of searches?	8 (80%)	2 (20%)	
h. how to log off GaIN MEDLINE?	9 (90%)		1 (10%)

	VERY USEFUL	SOMEWHAT USEFUL	NOT USEFUL
2. How useful was the workshop to you?	9 (90%)	1 (10%)	
3. Please rate the instructional manual and the "hands on experience."	10 (100%)		

4. What would you add or change to improve any part of this workshop (Please comment.)

name tags; more work on computers for those unfamiliar; more hands on time; excellent; one terminal per person

5. How well did the instructor communicate ideas?

(7) very well; very good, good job, very lucid

6. What did you like best about this workshop?

response to questions excellent; small group; (2) working on the computer; (5) hands on experience; (2) exercises; playing with computer

7. What did you like least about this workshop?

long lectures; (3) nothing

8. Any general comments very helpful; helpful; very good; well planned and executed; thanks for coming up with this - very useful

THANK YOU

5/17/84

EVALUATION FORM

INTRODUCTION TO THE USE OF COMPUTERS IN MEDICAL OFFICE MANAGEMENT

1. Please rate the

Structure	Too little	1	2	3	4	5	4	3	2	1	Too much
Content (amount)	Too little	1	2	3	4	5	4	3	2	1	Too much
Content (quality)	Poor	1	2	3	4	5	Excellent				
Style	Ineffective	1	2	3	4	5	Very effective				

2. Value of the

Work	Low	1	2	3	4	5	High
Visuals	Low	1	2	3	4	5	High

3. Overall evaluation Low 1 2 3 4 5 High

Would you recommend the seminar to a colleague? _____ Yes _____ No

4. What did you like best about the seminar?

_____

_____

5. What did you like least about the seminar?

_____

_____

6. What topics received too little coverage?

_____

_____

7. What topics received too much coverage?

_____

_____

8. Suggestions for improvements or changes:

_____

_____

Please rate the speaker

Organization	Too little	1	2	3	4	5	4	3	2	1	Too much
Knowledge	Poor	1	2	3	4	5	Excellent				
Style	Ineffective	1	2	3	4	5	Very effective				

Other comments:

_____

_____

_____

_____

_____

Thank you!

EVALUATION RESULTS

Introduction to the Use of Computers in Medical Office Management

30 participants in the seminar responded to the evaluation forms. They responded to the questions as follows.

1.

A. Structure

57% of the respondents said that the structure of the seminar was excellent.

27% of the respondents said that the structure of the seminar was good.

10% of the respondents said that the structure of the seminar was somewhat too structured.

B. Content (amount)

57% of the respondents said that the amount of content was good.

10% of the respondents said that there was somewhat too much content.

30% of the respondents said that there was somewhat too little content.

3% of the respondents didn't answer this question.

C. Content (quality)

64% of the respondents said that the quality of the content was excellent.

33% of the respondents said that the quality of the content was good.

3% of the respondents said that the quality of the content was average.

D. Style

50% of the respondents said that the style of the seminar was very effective.

30% of the respondents said that the style of the seminar was effective.

20% of the respondents said that the style of the seminar was fairly effective.

2. Value of the Visuals

64% of the respondents said that the value of the visuals was excellent.

23% of the respondents said that the value of the visuals was good.

10% of the respondents said that the value of the visuals was average.

3% of the respondents said that the value of the visuals was fair.

3. Overall Evaluation

53% of the respondents gave the seminar an overall evaluation of excellent.

37% of the respondents gave the seminar an overall evaluation of good.

7% of the respondents gave the seminar an overall evaluation of average.

3% of the respondents didn't answer this question.

4. Value of the Seminar to a Colleague

87% of the respondents said that they would recommend this seminar to a colleague.

7% of the respondents said that they would not recommend this seminar to a colleague.

6% of the respondents didn't answer this question.

PLEASE RATE THE SPEAKER

A. Organization

77% of the respondents said that the organization of the speaker was excellent.

13% of the respondents said that the organization of the speaker was good.

10% of the respondents didn't answer this question.

B. Knowledge

80% of the respondents said that the knowledge of the speaker was excellent.

7% of the respondents said that the knowledge of the speaker was good.

3% of the respondents said that the knowledge of the speaker was average.

10% of the respondents didn't answer this question.

C. Style

57% of the respondents said that the style of the speaker was very effective.

20% of the respondents said that the style of the speaker was effective.

13% of the respondents said that the style of the speaker was fairly effective.

10% of the respondents didn't answer this question.

5. Things the participants in the seminar liked best.

   a. The presentation was clear and easy to understand.
   b. The workbook made it unnecessary to take notes or only a few notes.
   c. The terminology was easy to understand.
   d. The sessions were informal and it was easy to ask questions.
   e. The speaker got to the point of the seminar and discussed how to evaluate and choose a system.
   f. The speaker knew his material well.

6. Things the participants in the seminar liked least.

   a. There was too much information for a 1 day seminar.
   b. Too little time was spent discussing hardware.
   c. More breaks were needed--sat too long.
   d. There was too much detail on specific needs of establishing an office system.
   e. Too superficial.
   f. Length of each session.
   g. Room was too dark and cold.
   h. The speaker didn't have the visuals up long enough to get all the information.
   i. Rushed through sessions.
   j. Lunch.
   k. No refreshments for the medical students.
   l. Presentation was too detailed.
   m. Not enough time for discussion.

7. Topics receiving too little coverage.

   a. Telecommunications
   b. Patient education elements
   c. Criteria for needing a computer
   d. Clinical applications
   e. CME applications
   f. Price of system components and manufacturers
   g. Applications to a medical practice

8. Topics receiving too much coverage.

   a. RFP's
   b. Business aspects
   c. Applications for office managers

Suggestions for improvement or changes

   a. More breaks
   b. More variation in material presentation

c. More stimulating visuals
d. Shorter lunch break
e. More sessions
f. Send workbook with registration materials so participants can read it before seminar
g. Sessions should be 20-25 minutes in length and then have a question and answer session
h. Imrove luncheon
j. More marketing of seminar

Other comments

a. Seminar was very informative
b. Very good
c. Excellent overall

M E M O R A N D U M

TO: John A. Hudson, M.D. Regional Director, Continuing Medical Education

FROM: Jean Williams, Assistant Director, Medical Library

RE: "Medline Searching for the Health Professional"

DATE: October 8, 1985

Thank you for reviewing our program and approving it for six hours of AMA Category I credit.

Attached is a list of participants and their addresses. Will your office take care of notifying the participants of the credit hours?

Conference Summary--15 health professionals registered for the course; and 14 attended. The instructors presented a concise, well-prepared course on searching the MEDLINE database. There was one display terminal for every two students and the instructors demonstrated on-line searching to the class during every segment of the course. There was a lot of discussion, questions and interchange between the students and instructors.

The evaluations revealed that almost everyone thought they understood the basics of MEDLINE after the course (which means the objectives were accomplished). Most people thought additional time would have been helpful for a better understanding. The instructors were rated very highly. Many of the students wished to have time on the keyboard of the terminals themselves, instead of just watching a demonstration.

Several of the students have searched MEDLINE after the workshop, using their two hours of free search time.

We have received several requests to repeat the course.

If you have further questions, please let me know. Thank you for your help.

EVALUATION FOR

NEW DEVELOPMENTS IN MEDICAL COMPUTING

ELECTRONIC TELECONFERENCING IN MEDICINE (ZIMMER)

1. Please rate the

	Too little 1	2	3	4	5	4	3	2	Too much 1
Structure			(25%) 6	(25%) 6	(42%) 10		(8%) 2		
Content (amount)			(21%) 5	(33%) 8	(33%) 8	(4%) 1	(8%) 2		

Content (quality)	Poor	1	2	3	4	5	Very Effective
			(4%) 1	(17%) 4	(54%) 13	(25%) 6	

2. Please rate the

Visuals	Low	1 (4%) 1	2 (8%) 2	3 (33%) 8	4 (33%) 8	5 (13%) 3	High	No Response (6%) 2
Speaker's ability to communicate ideas	Poor	1	2 (4%) 1	3 (25%) 6	4 (33%) 8	5 (38%) 9	Very effective	

3. Overall Evaluation	Low	1	2	3 (33%) 8	4 (33%) 8	5 (29%) 7	High	No Response (4%) 1

INTRODUCTION TO ARTIFICIAL INTELLIGENCE (AI) IN MEDICINE (MISHELEVICH)

1. Please rate the

	Too little 1	2	3	4	5	4	3	2	Too much 1
Structure			(8%) 2	(17%) 4	(46%) 11	(17%) 4	(4%) 1	(4%) 1	(4%) 1
Content (amount)			(4%) 1	(4%) 1	(46%) 11	(29%) 7	(13%) 3		(4%) 1

Content (quality)	Poor	1	2	3	4	5	Very Effective
				(17%) 4	(42%) 10	(42%) 10	

2. Please rate the

Visuals	Low	1	2	3	4	5	High
		(8%)	(8%)	(38%)	(21%)	(25%)	
		2	2	9	5	6	
Speaker's ability to communicate ideas	Poor	1	2	3	4	5	Very effective
				(8%)	(38%)	(54%)	
				2	9	13	
3. Overall Evaluation	Low	1	2	3	4	5	High
				(17%)	(42%)	(42%)	
				4	10	10	

IN GENERAL.....

I. What did you like most about the program?

Program was put together well; Informality; Interactions; Where we are and future trends excellent pairing; Informality and basic approach; both speakers were very realistic and compatible; One-day session; Good, new information; Good overview of the subjects; Interesting. Future trends that are developing; The AI lecture was very interesting and informative; The Artificial Intelligence topic; Timeliness; Physical Location; Perspective I gained on usefulness and potential of computers

II. What did you like least about the program?

Difficult to read overheads;

Teleconferencing did not have enough meat;

Would like to have seen some actual demonstrations of topics discussed;
Little applicable value;

III. Would you recommend this program to your colleagues?

(3 - No response; 1 responded "depends") YES 17 NO 1

IV. Suggestions for improvements?

More basic information about where GaIN behind-the-scenes is going; more direct communication to GaIN Users; Teleconferencing - more application information; Specific ways to use information provided; Slides rather than overheads; Clearer understanding of the level of knowledge needed; Expansion of topic to include implications of AI applications;

More frequent programs with greater intensity;

V. What future topics would be of interest to you?

For GaIN - a "how-to" and "how does it work" presentation and workshop; Marketing GaIN; What is GaIN and what can it do for us; Specific (medically) hardware- software approaches Patient education via in-office computers; Hardware for selected usages; software for various functional usage

More on Artificial Intelligence;

Demonstration of applications of telecommunicating and A.I.

THANK YOU!

20 responses

WORKSHOP EVALUATION FOR

AN INTRODUCTION TO THE IBM/PC AND MS-DOS

1. As a result of this workshop do you understand:

	YES	SOMEWHAT/ OR NOT SURE	NO
a. the personal computer system hardware components and what they are used for	17 (85%)	3 (15%)	0
b. the differences between firmware, operating system, applications programs	16 (80%)	4 (20%)	0
c. how to prepare diskettes for DOS; format a disk copy a disk	18 (90%)	2 (10%)	0
d. how to "boot" the system	17 (85%)	3 (15%)	0
e. the types of DOS commands	16 (80%)	4 (20%)	0
f. how to use DOS commands	16 (80%)	4 (20%)	0
g. how to maintain and organize files, and use the directory	10 (50%)	9 (45%)	0

	VERY USEFUL	SOMEWHAT USEFUL	NOT USEFUL
2. How useful was the course to you?	9 (45%)	11 (55%)	0
3. Please rate the course materials and the directed labs	15 (75%)	5 (25%)	0

4. What would you add or chage to improve any part of this workshop?

(Please comment) 14 responses - - Summary of comments: Have more computers; have same type of computers; more "hands-on" time; more helpers to aid instructor; wouldn't change anything; introduction to spreadsheets, data bases, word processors.

5. Would you recommend this workshop to your colleagues?

YES 18 (90%) NO _____ No Response 2 (10%)

6. How well did the instructor communicate ideas?

(Please comment) (11) very well; (2) fair to good; great; fine; very helpful

7. What did you like best about this workshop?

instructor's expertise on presentation; organization; useful; good information; "hands-on" (5); working materials and hands on experience; workbook; learning how to use DOS commands; one-day format

8. What did you like least about this workshop?

lack of time; wanted more 'hands-on" (2); speed; over my head; too many levels of expertise; specific goals and pretest would be helpful; problem was sharing a terminal; not enough terminals

9. Any General Comments

Excellent presenter - good materials and examples; needed more assistants; very worthwhile; instructor was very well organized; excellent; worthwhile; really enjoyed it; well run-coordinated; a follow-up class would be good.

THANK YOU!

(MEDICAL STUDENT QUESTIONNAIRE)

INSTRUCTIONS

During the past weeks, you focused on a biomedical problem concerning symptoms of Herpes. Please list the final issues which were discussed in your tutorial group. Beside each issue identify the steps you took, individually, to investigate each particular issue.

ISSUES

GaIN LIBRARIANS END OF PROJECT EVALUATION

1. How would you rate GaIN as an overall addition to your library services?

Extremely useful	5	4	3	2	1	Not useful	____ Don't know
	27%	33%	7%	10%			
	4	5	1	5			

2. Please rate each of the GaIN functions:

		5	4	3	2	1		
Electronic Mail	Extremely useful	53%	27%		13%	7%	Not useful	____ Don't use ____ Don't know
		8	4		2	1		
On-line Catalog	Extremely useful	7%	20%	12%		7%	Not useful	6 Don't use (40%) 1 Don't know (7%) 1 No Response (7%)
		1	3	2		1		
Consultant's Referral File	Extremely useful			20%	7%	20%	Not useful	6 Don't use (20%) 1 Don't know (7%) 1 No Response (7%)
				3	1	3		
IPM - Search Request Form	Extremely useful	7%				20%	Not useful	9 Don't use (60%) 2 Don't know (13%)
		1				3		
Listing Searches	Extremely useful	13%	7%	7%	7%	7%	Not useful	8 Don't use (52%) 1 Don't know (7%)
		2	1	1	1	1		
GaIN Medline	Extremely useful	20%	7%	7%	7%	7%	Not useful	7 Don't use (45%) ____ Don't know 1 No Response (7%)
		3	1	1	1	1		
Gateway to Outside Databases	Extremely useful	20%	33%			7%	Not useful	4 Don't use (26%) 1 Don't know (7%) 1 No Response (7%)
		3	5			1		

3. Please rate GaIN training sessions:

			5	4	3	2	1		
(a)	Initial training (at hospital)	Extremely useful	53%	7%	33%	7%		Not useful	____ Don't know
			8	4	5	1			
(b)	Electronic Mail update	Extremely useful	33%	33%	27%	7%		Not useful	____ Don't know
			5	5	4	1			
(c)	GaIN Medline update	Extremely useful	33%	13%	27%		7%	Not useful	3 Don't know (20%)
			5	2	4		1		
(d)	Other training (word processing, downloading, etc.)	Extremely useful	27%	13%	20%	20%	7%	Not useful	2 Don't know (13%)
			4	2	3	3	1		
(e)	Network educational seminars (Artificial Intelligence, Medline for Health Professionals, etc.)	Extremely useful	33%	7%	20%		7%	Not useful	4 Don't know (26%) 1 Did not attend (7%)
			5	1	3		1		

4. Do you use your microcomputer for other applications besides GaIN?

13 yes 2 no

If yes, please explain: Word processing (6), Accounting (2), Data base management (4), DHR terminal (1), Miscellaneous (1), Docline (7), BRS/Medline (6), Statistics (3), Instruction (1), Graphics (1)

How often do you use the micro?

5	4	3	2	1
Frequently	Weekly	Monthly	Seldom	Never
60%	40%			
9	6			

5. How important do you believe microcomputers will be to libraries in 1990?

Very important 5 (100%, 15) 4 3 2 1 Not important _____ Don't know

6. How important do you believe microcomputers will be to MD's in 1990?

Very important 5 (72%, 11) 4 (7%, 1) 3 (7%, 1) 2 1 (7%, 1) Not important 1 Don't know (7%)

How has GaIN affected your ability to provide library services? (Check all that apply.)

87%		
13	1.	Increased number of services offered
80%		
12	2.	Increased visibility of your library
87%		
13	3.	Extended library services beyond the walls of the library
73%		
11	4.	Introduced automated services to your library
7%		
1	5.	No effect

8. Please comment on your involvement with the GaIN project.

Innovative (2), Networking (1), Improved library (3), Helpful instructors (2), Cataloging & CE most useful (3), Not progressed to computer "mind set" (1), Bad phone lines/Line noise (2), Redundant software (1), Realization of goal of electronic communication (1), Too much, too fast (1), Helped in aiding "end-users" (1)

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Subj: GAIN CATALOGING SURVEY  04 Sep 86 09:49
From: ROSNER, ANNALIISA  16 Lines in 'IN' basket.
---------------------------------------------------------------------------

'EAR LIBRARIAN:
SINCE YOU HAVE BEEN A MEMBER OF THE GAIN CATALOGING SERVICE FOR SOME
TIME NOW, WE WOULD LIKE TO GET YOUR FEEDBACK AND COMMENTS ON THE
SERVICE.  PLEASE ANSWER THE FOLLOWING QUESTIONS:
 1. SINCE BECOMING A MEMBER OF THE SERVICE, APPROXIMATELY HOW
    OFTEN DO YOU USE IT?
    ______MONTHLY    ______QUARTERLY   ..... OTHER (SPECIFY)
 2. HOW DO YOU RATE THE VALUE OF THE SERVICE TO YOU ON A SCALE OF
          (LOW)  1  2  3  4  5  (HIGH)
 3. WHAT DO YOU LIKE ABOUT THE SERVICE?
 4. WHAT WOULD YOU LIKE CHANGED OR IMPROVED IN THE SERVICE?
 5. ANY OTHER COMMENTS?

PLEASE LET US HAVE YOUR RESPONSE BY FRIDAY, SEPTEMBER 12TH.  THANK
YOU FOR YOUR TIME!              ANNALIISA ROSNER AND GODFREY BELLEH
                                CATALOGING DEPARTMENT, MERCER


Select MESSAGE Action: IGNORE//  Ignored.

IN Basket Message: 2//
<INTERRUPT> at  9:36 AM
Exit M

InterSystems M 64
 assword:
```

GaIN FOLLOW-UP TO PHYSICIANS

QUESTIONNAIRE

	Important 5	4	3	2	Not Important 1	Don't Know ?
1. Rate your perception of the role of microcomputers in medical practice five years from now.	30	17	4	0	0	0
2. Rate your perception of the role of GaIN in your medical practice today.	3	2	17	14	15	0
3. Rate your perception of the role of GaIN for Georgia physicians five years from now.	23	15	11	1	0	1

59 GaIN M.D.'s contacted

51 GaIN M.D.'s responded

PHYSICIANS' FOLLOW-UP QUESTIONNAIRE ON GaIN ONLINE FUNCTIONS:

Please rate each of the GaIN functions:

Electronic Mail	Extremely useful	5 31% (4)	4 38% (5)	3 8% (1)	2	1 8% (1)	Not useful	2 Don't use (15%) Don't know
On-line Catalog	Extremely useful	5 46% (6)	4 46% (6)	3	2	1 8% (1)	Not useful	Don't use Don't know
Consultant's Referral File	Extremely useful	5 15% (2)	4	3	2	1 23% (3)	Not useful	7 Don't use (54%) 1 Don't know (1%)
IPM - Search Request Form	Extremely useful	5	4 8% (1)	3	2	1 8% (1)	Not useful	7 Don't use (54%) 3 Don't know (23%) 1 No response (8%)
Listing Searches	Extremely useful	5 15% (2)	4 23% (3)	3 8% (1)	2	1 8% (1)	Not useful	4 Don't use (31%) 2 Don't know (15%)
GaIN Medline	Extremely useful	5 62% (8)	4 31% (4)	3	2	1 8% (1)	Not useful	Don't use Don't know
Gateway to Outside Databases	Extremely useful	5 15% (2)	4 8% (1)	3 8% (1)	2	1	Not useful	8 Don't use (62%) 1 Don't know (8%)

(13 Respondents)